NAEP 2005 Mathematics Report for California

This report provides selected results from the National Assessment of Educational Progress (NAEP) for California's public school students at grades 4 and 8. Beginning in 1990, mathematics has been assessed in six different years at the state level (at grade 8 in 1990, and at both grades 4 and 8 in 1992, 1996, 2000, 2003, and 2005).

In the 2005 assessment, 52 jurisdictions participated: the 50 states, the District of Columbia, and the Department of Defense Schools (domestic and overseas). California participated and met the criteria for reporting public school results.

NAEP is a project of the National Center for Education Statistics (NCES). For more information about the assessment, see *The Nation's Report Card, Mathematics 2005,* which is available on the NAEP website along with the full set of national and state results in an interactive database (http://nces.ed.gov/nationsreportcard/). Released test questions, scoring guides, and question-level performance data are also available on the website.

K E Y F I N D I N G S F O R 2 0 0 5

Grade 4:

- The average mathematics score for students in California was 230. This was higher than that in 1992 (208) and was higher than that in 2003 (227).
- California's average score (230) was lower than that of the nation's public schools (237).
- The percentage of students in California who performed at or above *Proficient* was 28 percent. This was greater than that in 1992 (12 percent) and was greater than that in 2003 (25 percent).
- In California, the percentage of students who performed at or above *Proficient* was smaller than that for the nation's public schools (35 percent).
- The percentage of students in California who performed at or above *Basic* was 71 percent. This was greater than that in 1992 (46 percent) and was greater than that in 2003 (67 percent).
- In California, the percentage of students who performed at or above *Basic* was smaller than that for the nation's public schools (79 percent).

Grade 8:

- The average mathematics score for students in California was 269. This was higher than that in 1990 (256) and was not significantly different from that in 2003 (267).
- California's average score (269) was lower than that of the nation's public schools (278).
- The percentage of students in California who performed at or above *Proficient* was 22 percent. This was greater than that in 1990 (12 percent) and was not significantly different from that in 2003 (22 percent).
- In California, the percentage of students who performed at or above *Proficient* was smaller than that for the nation's public schools (28 percent).
- The percentage of students in California who performed at or above *Basic* was 57 percent. This was greater than that in 1990 (45 percent) and was not significantly different from that in 2003 (56 percent).
- In California, the percentage of students who performed at or above *Basic* was smaller than that for the nation's public schools (68 percent).

Introduction

What Was Assessed?

The content for each NAEP assessment is determined by the National Assessment Governing Board (NAGB). The objectives for each NAEP assessment are described in a "framework," a document that delineates the important content and process areas to be measured, as well as the types of questions to be included on the assessment. In 2000, NAGB awarded a contract to the Council of Chief State School Officers (CCSSO) to update the mathematics assessment framework for 2005. CCSSO established a steering committee, representative of national policy organizations, mathematics associations, research mathematicians, business and industry, and educators to develop policy recommendations for the mathematics assessment and to guide the direction and scope of the project. Care was taken to ensure that the diversity of opinion regarding mathematics issues was represented and reflected.

The mathematics framework for the 2005 National Assessment of Educational Progress is based on the frameworks that guided the 1990, 1992, 1996, 2000, and 2003 mathematics assessments. Those frameworks were developed with the guidance of the College Board and directed by NAGB. The 2005 NAEP mathematics framework calls for questions based on five mathematics content areas: number properties and operations; measurement; geometry; data analysis and probability; and algebra. The mathematics framework is available on the NAGB website (http://www.nagb.org/pubs/m_framework_05/761607-Math%20Framework.pdf).

The 2005 mathematics framework classifies test items in two dimensions—content area and mathematical complexity. Although the names of the content areas, as well as some of the topics in those areas, have changed from one framework to the next, a consistent focus has remained across frameworks on collecting information on student performance in the five content areas mentioned above. The two dimensions of mathematical ability and power in the 1996–2003 frameworks have been replaced in the 2005 framework by the dimension of mathematical complexity.

A combination of multiple-choice and constructed-response questions was used to assess students' mathematics performance. Short constructed-response questions ask students to provide the answer for a numerical problem or to briefly describe the solution to a problem. Longer constructed-response questions require students to produce both a solution and a justification, explanation, or interpretation for the solution. Released test questions, along with student performance data by state, are available on the NAEP website (http://nces.ed.gov/nationsreportcard/itmrls/).

The framework incorporates the use of calculators (four-function at grade 4 and scientific at grade 8), rulers, protractors (grade 8), and manipulatives such as spinners and geometric shapes. The use of these ancillary materials and the use of calculators were incorporated into some parts of the assessment, but not all. Calculator use was permitted on approximately one-third of the test questions.

Who Was Assessed?

Fifty-two jurisdictions participated in NAEP in 2005: the 50 states, the District of Columbia, and the Department of Defense Education Activity Schools (domestic and overseas). The target sample for each state or other jurisdiction was approximately 100 schools at each grade tested and approximately 3,000 students for each subject at each grade, except in small or sparsely populated jurisdictions.

The sample of schools and students was chosen in a two-stage sampling process. First, the sample of schools was selected by probability sampling methods. Then, within the participating schools, random samples of students were chosen.

Beginning in 2002, the national sample was obtained by aggregating the samples from each state. The national results include the results from the states and from a sample of private schools, weighted appropriately to represent the U.S. student population. Only public schools, however, are included in the state reports.

The overall participation rates for schools and students must meet guidelines established by the National Center for Education Statistics (NCES) and the National Assessment Governing Board (NAGB) in order for assessment results to be reported publicly. Participation rates before substitution needed to be at least 80 percent for schools and at least 85 percent for students in each subject and grade.

Participation rates for the 2005 mathematics assessment are available at the NAEP website (http://nces.ed.gov/nationsreportcard/mathematics/sampledesign.asp).

How Is Student Mathematics Performance Reported?

The results of student performance on the NAEP assessments are reported for various groups of students (e.g., fourth-grade female students or students who took the assessment in a particular year). NAEP does not produce scores for individual students, nor does it report scores for schools or for school districts. Some large urban districts, however, have voluntarily participated in the assessment on a trial basis and were sampled as states were sampled. Mathematics performance for groups of students is reported in two ways: as average scale scores and as achievement levels.

Scale Scores: Student performance is reported as an average score based on the NAEP mathematics scale, which ranges from 0 to 500 and is linked to the corresponding scales in 1990, 1992, 1996, 2000, and 2003. Subscales were created to reflect performance on each of the five content areas defined in the NAEP mathematics framework.

An overall composite scale was developed by weighting each of the mathematics subscales for the grade based on its relative importance in the framework. This composite scale is the metric used to present the average scale scores and selected percentiles used in NAEP reports.

Achievement Levels: Student performance is also reported in terms of three achievement levels—*Basic, Proficient*, and *Advanced*. Results based on achievement levels are expressed in terms of the percentage of students who attained each level. The three achievement levels are defined as follows:

- *Basic*: This level denotes partial mastery of prerequisite knowledge and skills that are fundamental for proficient work at each grade.
- *Proficient*: This level represents solid academic performance for each grade assessed. Students reaching this level have demonstrated competency over challenging subject matter, including subject-matter knowledge, application of such knowledge to real-world situations, and analytical skills appropriate to the subject matter.
- *Advanced*: This level signifies superior performance.

The achievement levels are cumulative. Therefore, students performing at the *Proficient* level also display the competencies associated with the *Basic* level, and students at the *Advanced* level demonstrate the competencies associated with both the *Basic* and the *Proficient* levels.

The achievement levels are performance standards adopted by the National Assessment Governing Board (NAGB) as part of its statutory responsibilities mandated by Congress. The levels represent collective judgments of what students should know and be able to do for each grade tested. They are based on recommendations made by broadly representative panels of classroom teachers, education specialists, and members of the general public from throughout the United States. As provided by law, the National Center for Education Statistics (NCES), upon review of congressionally mandated evaluations of NAEP, has determined that the achievement levels are to be used on a trial basis until it is determined that they are "reasonable, valid, and informative to the public." (No Child Left Behind Act of 2001, P.L., 107-110, 115 Stat.1425 [2002]). However, both NCES and NAGB believe these performance standards are useful for understanding trends in student achievement. They have been widely used by national and state officials as a common yardstick for academic performance. The mathematics achievement-level descriptions are summarized in figure 1.

Figure 1-A	The Nation's Report Card 2005 State Assessment
	Descriptions of NAEP mathematics achievement levels, grade 4

Basic Level (214)	Fourth-grade students performing at the *Basic* level should show some evidence of understanding the mathematical concepts and procedures in the five NAEP content areas.

Fourth-graders performing at the *Basic* level should be able to estimate and use basic facts to perform simple computations with whole numbers, show some understanding of fractions and decimals, and solve some simple real-world problems in all NAEP content areas. Students at this level should be able to use—though not always accurately—four-function calculators, rulers, and geometric shapes. Their written responses are often minimal and presented without supporting information.

Proficient Level (249)	Fourth-grade students performing at the *Proficient* level should consistently apply integrated procedural knowledge and conceptual understanding to problem solving in the five NAEP content areas.

Fourth-graders performing at the *Proficient* level should be able to use whole numbers to estimate, compute, and determine whether results are reasonable. They should have a conceptual understanding of fractions and decimals; be able to solve real-world problems in all NAEP content areas; and use four-function calculators, rulers, and geometric shapes appropriately. Students performing at the *Proficient* level should employ problem-solving strategies such as identifying and using appropriate information. Their written solutions should be organized and presented both with supporting information and explanations of how they were achieved.

Advanced Level (282)	Fourth-grade students performing at the *Advanced* level should apply integrated procedural knowledge and conceptual understanding to complex and nonroutine real-world problem solving in the five NAEP content areas.

Fourth-graders performing at the *Advanced* level should be able to solve complex and nonroutine real-world problems in all NAEP content areas. They should display mastery in the use of four-function calculators, rulers, and geometric shapes. The students are expected to draw logical conclusions and justify answers and solution processes by explaining why, as well as how, they were achieved. They should go beyond the obvious in their interpretations and be able to communicate their thoughts clearly and concisely.

NOTE: The scores in parentheses indicate the cut point on the scale at which the achievement-level range begins.
SOURCE: National Assessment Governing Board. (2004). *Mathematics Framework for the 2005 National Assessment of Educational Progress.* Washington, DC: Author.

Figure 1-B	The Nation's Report Card 2005 State Assessment
	Descriptions of NAEP mathematics achievement levels, grade 8

Basic Level (262)	Eighth-grade students performing at the *Basic* level should exhibit evidence of conceptual and procedural understanding in the five NAEP content areas. This level of performance signifies an understanding of arithmetic operations—including estimation—on whole numbers, decimals, fractions, and percents.

Eighth-graders performing at the *Basic* level should complete problems correctly with the help of structural prompts such as diagrams, charts, and graphs. They should be able to solve problems in all NAEP content areas through the appropriate selection and use of strategies and technological tools—including calculators, computers, and geometric shapes. Students at this level also should be able to use fundamental algebraic and informal geometric concepts in problem solving. As they approach the *Proficient* level, students at the *Basic* level should be able to determine which of the available data are necessary and sufficient for correct solutions and use them in problem solving. However, these eighth-graders show limited skill in communicating mathematically.

Proficient Level (299)	Eighth-grade students performing at the *Proficient* level should apply mathematical concepts and procedures consistently to complex problems in the five NAEP content areas.

Eighth-graders performing at the *Proficient* level should be able to conjecture, defend their ideas, and give supporting examples. They should understand the connections among fractions, percents, decimals, and other mathematical topics such as algebra and functions. Students at this level are expected to have a thorough understanding of *Basic*-level arithmetic operations—an understanding sufficient for problem solving in practical situations. Quantity and spatial relationships in problem solving and reasoning should be familiar to them, and they should be able to convey underlying reasoning skills beyond the level of arithmetic. They should be able to compare and contrast mathematical ideas and generate their own examples. These students should make inferences from data and graphs, apply properties of informal geometry, and accurately use the tools of technology. Students at this level should understand the process of gathering and organizing data and be able to calculate, evaluate, and communicate results within the domain of statistics and probability.

Advanced Level (333)	Eighth-grade students performing at the *Advanced* level should be able to reach beyond the recognition, identification, and application of mathematical rules in order to generalize and synthesize concepts and principles in the five NAEP content areas.

Eighth-graders performing at the *Advanced* level should be able to probe examples and counterexamples in order to shape generalizations from which they can develop models. Eighth-graders performing at the *Advanced* level should use number sense and geometric awareness to consider the reasonableness of an answer. They are expected to use abstract thinking to create unique problem-solving techniques and explain the reasoning processes underlying their conclusions.

NOTE: The scores in parentheses indicate the cut point on the scale at which the achievement-level range begins.
SOURCE: National Assessment Governing Board. (2004). *Mathematics Framework for the 2005 National Assessment of Educational Progress.* Washington, DC: Author.

Assessing Students With Disabilities (SD) and/or English Language Learners (ELL)

The results displayed in this report and official publications of NAEP 2005 results are based on representative samples that include students with disabilities (SD) and students who are English language learners (ELL). Some of these students were assessed using accommodations (such as extra time and testing in small groups). In state NAEP mathematics assessments prior to 2000, no testing accommodations or adaptations were permitted for students with disabilities and students who were English language learners. However, research carried out by NAEP showed that the results for students who were accommodated could be combined with the results for unaccommodated students without compromising the validity of the NAEP scales in trend comparisons. Therefore, the SD and ELL students who were identified as SD or ELL and typically received accommodations in their classroom testing, and who required these accommodations to participate, also received them in the NAEP assessment, provided the accommodations did not change the nature of what was tested.

Students who had an Individualized Education Program (IEP) or were protected under Section 504 of the Rehabilitation Act of 1973 were to be included in the NAEP assessment except when

- the school's IEP team determined that the student could not participate, because the student's cognitive functioning was so severely impaired that she or he could not participate,
- the student's IEP required that the student had to be tested with an accommodation or adaptation that NAEP does not allow and the student could not demonstrate his or her knowledge without that accommodation.

All ELL who received academic instruction in English for three years or more were to be included in the assessment. Those ELL who received instruction in English for less than three years were to be included unless school staff judged them to be incapable of participating in the assessment in English.

In 2000, NAEP was administered using a split sample of schools—one sample in which accommodations were permitted for special-needs students who normally received them and another sample in which accommodations were not permitted. Therefore, there were two different sets of results available for 2000. The results for both samples are shown in the tables in this report. Results for the assessment years where accommodations were not permitted in state NAEP assessments (1990, 1992, 1996) are reported in the same tables as the results where accommodations were permitted (2000, 2003, and 2005).

Cautions in Interpreting Results

The averages and percentages in this report are estimates based on samples of students rather than on entire populations. Moreover, the collection of questions used at each grade level is only a sample of the many questions that could have been asked to assess the skills and abilities described in the NAEP framework. Therefore, the results are subject to a measure of uncertainty, reflected in the standard error of the estimates—a range of up to a few points above or below the score or percentage—which takes into account potential score fluctuation due to sampling error and measurement error. Statistical tests that factor in these standard errors are used to determine whether the differences between average scores or percentages are significant. All differences were tested for statistical significance at the .05 level.

NAEP sample sizes have increased since 2002 compared to previous years, resulting in smaller standard errors. As a consequence, smaller differences are detected as statistically significant than in previous assessments. In addition, estimates based on smaller groups are likely to have relatively large standard errors. As a consequence, some seemingly large differences may not be statistically significant. That is, it cannot be determined whether these differences are due to the particular makeup of the samples of students who were selected, or to true differences in the population of interest.

Differences between scores or between percentages are discussed in this report only when they are significant from a statistical perspective. Statistically significant differences are referred to as "significant differences" or "significantly different." Significant differences between 2005 and prior assessments are marked with a notation (*) in the tables. Any differences in scores within a year or across years that are mentioned in the text as "higher," "lower," "greater," or "smaller" are statistically significant.

It is important to note that simple cross-tabulations of a variable with measures of educational achievement, like the ones presented in this report, cannot constitute proof that a difference in the variable causes differences in educational achievement. There might be several reasons why the performance of one group of students might differ from another. Only through controlled experiments with random assignment of students to groups can we test hypotheses about the causes of performance differences.

NAEP 2005 Mathematics Overall Scale Score and Achievement-Level Results for Public School Students

Overall Scale Score Results

In this section student performance is reported as an average score based on the NAEP mathematics scale, which ranges from 0 to 500. Scores on this scale are comparable from 1990 through 2005.

Prior to 2000, testing accommodations were not provided for students with special needs in NAEP state mathematics assessments. For 2000, results are displayed for both the sample in which accommodations were permitted and the sample in which they were not permitted. Subsequent assessment results were based on the more inclusive samples. In the text of this report, comparisons to 2000 results refer only to the sample in which accommodations were permitted.

Tables 1-A and 1-B present the overall performance results of grade 4 and 8 public school students in California, the nation (public), and the region. The list of states making up a given region for NAEP prior to 2003 differed from the list used by the U.S. Census Bureau which has been used in NAEP from 2003 onward. Therefore, the data for the state's region are given only for 2003 and 2005. The first column of results presents the average score on the NAEP mathematics scale. The remaining columns show the scores at selected percentiles. A percentile indicates the percentage of students whose scores fell at or below a particular score. For example, the 25th percentile demarks the cut point for the lowest 25 percent of students within the distribution of scale scores.

Grade 4 Scale Score Results

- In 2005, the average scale score for students in California was 230. This was lower than that for students across the nation (237).
- In California, the average scale score for students in 2005 was higher than that in 1992 (208).
- In California, the average scale score for students in 2005 was higher than that in 1996 (209).
- In California, the average scale score for students in 2005 was higher than that in 2000 (213).
- In California, the average scale score for students in 2005 was higher than that in 2003 (227). Similarly, the average scale score for students in public schools across the nation in 2005 was higher than that in 2003 (234).

The Nation's Report Card 2005 State Assessment

Table 1-A

Average mathematics scale scores and selected percentiles, grade 4 public schools: various years, 1992–2005

Year and jurisdiction		Average scale score	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile
1992[1]	Nation (public)	219*	176*	197*	220*	241*	259*
	California	208*	160*	185*	211*	234*	253*
1996[1]	Nation (public)	222*	180*	201*	224*	244*	261*
	California	209*	166*	186*	210*	233*	250*
2000[1]	Nation (public)	226*	185*	206*	228*	249*	265*
	California	214*	169*	191*	216*	238*	255*
2000	Nation (public)	224*	183*	203*	225*	247*	264*
	California	213*	171*	190*	214*	236*	253*
2003	Nation (public)	234*	196*	215*	235*	254*	270*
	West[2]	230*	191*	210*	231*	251*	267*
	California	227*	188	207*	228*	249	266
2005	Nation (public)	237	199	219	239	257	272
	West[2]	233	193	213	235	254	270
	California	230	190	210	232	252	269

* Value is significantly different from the value for the same jurisdiction in 2005.

[1] Accommodations were not permitted for this assessment.

[2] The four regions defined by the U.S. Census Bureau are Northeast, South, Midwest, and West.

NOTE: The NAEP grade 4 mathematics scale ranges from 0 to 500. All differences were tested for statistical significance at the .05 level using unrounded numbers. Performance comparisons may be affected by differences in exclusion rates for students with disabilities and English language learners in the NAEP samples and by changes in sample sizes.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1992–2005 Mathematics Assessments.

Grade 8 Scale Score Results

- In 2005, the average scale score for students in California was 269. This was lower than that for students across the nation (278).
- In California, the average scale score for students in 2005 was higher than that in 1990 (256).
- In California, the average scale score for students in 2005 was higher than that in 1992 (261).
- In California, the average scale score for students in 2005 was higher than that in 1996 (263).
- In California, the average scale score for students in 2005 was higher than that in 2000 (260).
- In California, the average scale score for students in 2005 was not significantly different from that in 2003 (267). However, the average scale score for students in public schools across the nation in 2005 was higher than that in 2003 (276).

Table 1-B

The Nation's Report Card 2005 State Assessment

Average mathematics scale scores and selected percentiles, grade 8 public schools: various years, 1990–2005

Year and jurisdiction		Average scale score	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile
1990[1]	Nation (public)	262*	214*	237*	263*	288*	307*
	California	256*	207*	231*	257*	282*	304*
1992[1]	Nation (public)	267*	219*	242*	268*	293*	314*
	California	261*	210*	235*	262*	288*	309*
1996[1]	Nation (public)	271*	222*	247*	272*	296*	316*
	California	263*	214	237*	264*	288*	311*
2000[1]	Nation (public)	274*	225*	250*	276*	300	321
	California	262*	212	237*	264*	290	312*
2000	Nation (public)	272*	221*	247*	274*	299*	320*
	California	260*	207*	234*	262*	289	310*
2003	Nation (public)	276*	228*	253*	278*	301*	321*
	West[2]	272	222	247	273	299	320
	California	267	215	241	268	295	318
2005	Nation (public)	278	230	254	279	303	323
	West[2]	273	224	248	274	299	321
	California	269	219	243	269	295	318

* Value is significantly different from the value for the same jurisdiction in 2005.

[1] Accommodations were not permitted for this assessment.

[2] The four regions defined by the U.S. Census Bureau are Northeast, South, Midwest, and West.

NOTE: The NAEP grade 8 mathematics scale ranges from 0 to 500. All differences were tested for statistical significance at the .05 level using unrounded numbers. Performance comparisons may be affected by differences in exclusion rates for students with disabilities and English language learners in the NAEP samples and by changes in sample sizes.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1990–2005 Mathematics Assessments.

Overall Achievement-Level Results

In this section student performance is reported as the percentage of students performing relative to performance standards set by the National Assessment Governing Board (NAGB). These performance standards for what students should know and be able to do were based on the recommendations of broadly representative panels of educators and members of the public.

In 2000 only, results were obtained for two student samples: one for which accommodations were permitted and one for which accommodations were not permitted. However, in the text of this report, comparisons to 2000 results refer only to the sample in which accommodations were permitted.

Tables 2-A and 2-B present the percentage of students at grade 4 and 8 who performed below *Basic*, at or above *Basic*, at or above *Proficient*, and at the *Advanced* level. Because the percentages are cumulative from *Basic* to *Proficient* to *Advanced*, they sum to more than 100 percent. Only the percentage of students performing at or above *Basic* (which includes the students at *Proficient* and *Advanced)* plus the students below *Basic* will sum to 100 percent (except for rounding).

Grade 4 Achievement-Level Results

- In 2005, the percentage of California's students who performed at or above *Proficient* was 28 percent. This was smaller than the percentage of the nation's public school students who performed at or above *Proficient* (35 percent).
- In California, the percentage of students who performed at or above *Proficient* in 2005 was greater than that in 1992 (12 percent).
- In California, the percentage of students who performed at or above *Proficient* in 2005 was greater than that in 1996 (11 percent).
- In California, the percentage of students who performed at or above *Proficient* in 2005 was greater than that in 2000 (13 percent).
- In California, the percentage of students who performed at or above *Proficient* in 2005 was greater than that in 2003 (25 percent).

The Nation's Report Card 2005 State Assessment

Table 2-A

Percentage of students at or above mathematics achievement levels, grade 4 public schools: various years, 1992–2005

Year and jurisdiction		Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
1992[1]	Nation (public)	43*	57*	17*	2*
	California	54*	46*	12*	1*
1996[1]	Nation (public)	38*	62*	20*	2*
	California	54*	46*	11*	1*
2000[1]	Nation (public)	33*	67*	25*	2*
	California	48*	52*	15*	1*
2000	Nation (public)	36*	64*	22*	2*
	California	50*	50*	13*	1*
2003	Nation (public)	24*	76*	31*	4*
	West[2]	29*	71*	27*	3*
	California	33*	67*	25*	3
2005	Nation (public)	21	79	35	5
	West[2]	26	74	31	4
	California	29	71	28	4

* Value is significantly different from the value for the same jurisdiction in 2005.

[1] Accommodations were not permitted for this assessment.

[2] The four regions defined by the U.S. Census Bureau are Northeast, South, Midwest, and West.

NOTE: Achievement levels correspond to the following points on the NAEP mathematics scale: below *Basic*, 213 or lower; *Basic*, 214–248; *Proficient*, 249–281; and *Advanced*, 282 and above. All differences were tested for statistical significance at the .05 level using unrounded numbers. Detail may not sum to totals because of rounding. Performance comparisons may be affected by differences in exclusion rates for students with disabilities and English language learners in the NAEP samples and by changes in sample sizes.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1992–2005 Mathematics Assessments.

Grade 8 Achievement-Level Results

- In 2005, the percentage of California's students who performed at or above *Proficient* was 22 percent. This was smaller than the percentage of the nation's public school students who performed at or above *Proficient* (28 percent).
- In California, the percentage of students who performed at or above *Proficient* in 2005 was greater than that in 1990 (12 percent).
- In California, the percentage of students who performed at or above *Proficient* in 2005 was greater than that in 1992 (16 percent).
- In California, the percentage of students who performed at or above *Proficient* in 2005 was greater than that in 1996 (17 percent).
- In California, the percentage of students who performed at or above *Proficient* in 2005 was greater than that in 2000 (17 percent).
- In California, the percentage of students who performed at or above *Proficient* in 2005 was not significantly different from that in 2003 (22 percent).

Table 2-B

The Nation's Report Card 2005 State Assessment

Percentage of students at or above mathematics achievement levels, grade 8 public schools: various years, 1990–2005

Year and jurisdiction		Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
1990[1]	Nation (public)	49*	51*	15*	2*
	California	55*	45*	12*	2*
1992[1]	Nation (public)	44*	56*	20*	3*
	California	50*	50*	16*	2*
1996[1]	Nation (public)	39*	61*	23*	4*
	California	49*	51*	17*	3*
2000[1]	Nation (public)	35*	65*	26*	5
	California	48*	52*	18*	3*
2000	Nation (public)	38*	62*	25*	5*
	California	50*	50*	17*	2*
2003	Nation (public)	33*	67*	27*	5*
	West[2]	39	61	25	5
	California	44	56	22	4
2005	Nation (public)	32	68	28	6
	West[2]	38	62	25	5
	California	43	57	22	5

* Value is significantly different from the value for the same jurisdiction in 2005.

[1] Accommodations were not permitted for this assessment.

[2] The four regions defined by the U.S. Census Bureau are Northeast, South, Midwest, and West.

NOTE: Achievement levels correspond to the following points on the NAEP mathematics scale: below *Basic*, 261 or lower; *Basic*, 262–298; *Proficient*, 299–332; and *Advanced*, 333 and above. All differences were tested for statistical significance at the .05 level using unrounded numbers. Detail may not sum to totals because of rounding. Performance comparisons may be affected by differences in exclusion rates for students with disabilities and English language learners in the NAEP samples and by changes in sample sizes.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1990–2005 Mathematics Assessments.

Comparisons Between California, the Nation, and Other Participating States and Jurisdictions

Fifty-two jurisdictions participated in the mathematics assessment in 2005. These include the 50 states, the District of Columbia, and the Department of Defense Education Activity (DoDEA) schools (domestic and overseas). Previous NAEP reports presented results for the Department of Defense Dependents Schools (DoDDS) overseas and the Department of Defense Domestic Dependent Elementary and Secondary Schools (DDESS) in the United States separately. Data for the two jurisdictions in prior years have been retroactively combined to provide comparable data for the single DoDEA jurisdiction.

Comparisons by Average Scale Scores

Figures 2-A and 2-B compare California's 2005 overall mathematics scale scores at grades 4 and 8 with those of public schools in the nation and all other participating states and jurisdictions. The different shadings indicate whether the average score of the nation (public), a state, or a jurisdiction was found to be higher than, lower than, or not significantly different from that of California in the NAEP 2005 mathematics assessment.

Grade 4 Scale Score Comparisons Results

- Students' average score in California was higher than the scores in 4 jurisdictions, not significantly different from those in 7 jurisdictions, and lower than those in 40 jurisdictions.

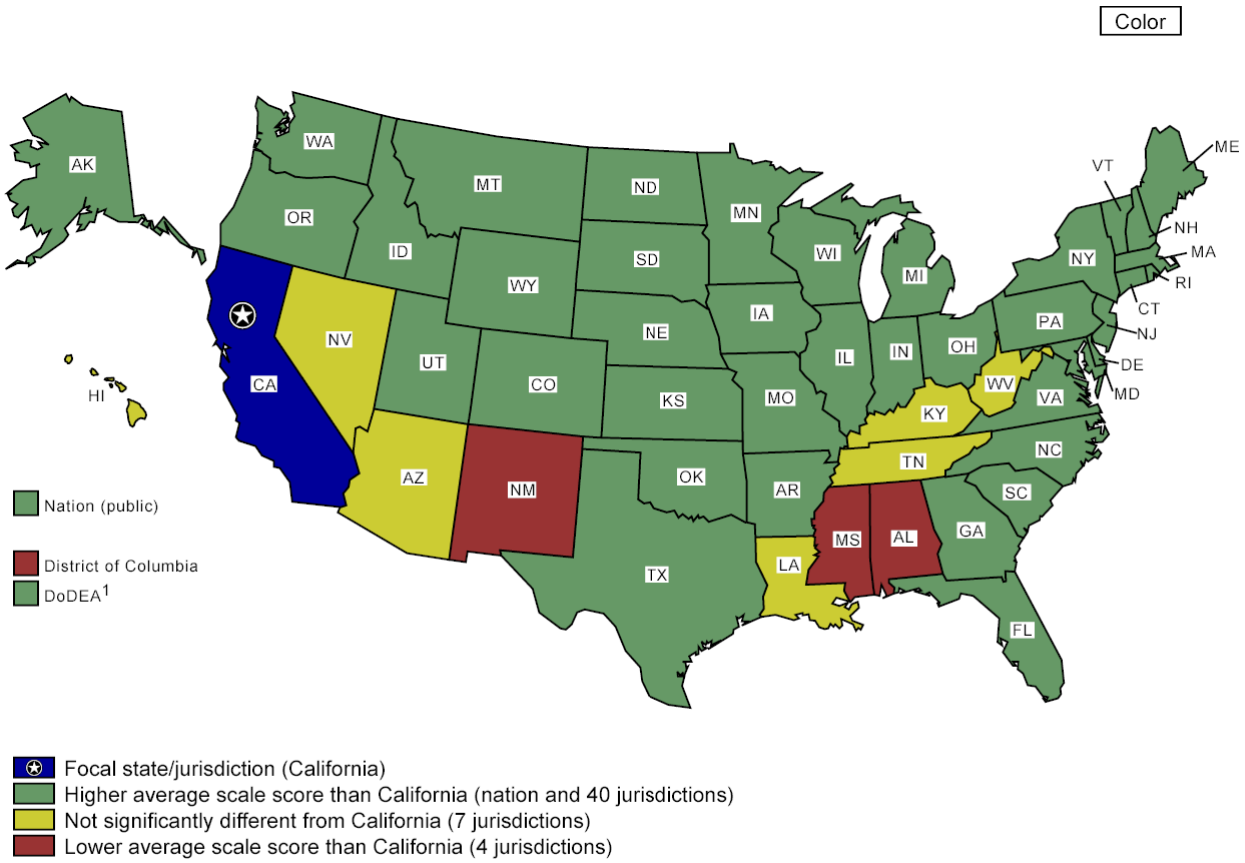
Grade 8 Scale Score Comparisons Results

- Students' average score in California was higher than the scores in 5 jurisdictions, not significantly different from those in 4 jurisdictions, and lower than those in 42 jurisdictions.

Figure 2-A

The Nation's Report Card 2005 State Assessment

California's average mathematics scale score compared with scores for the nation and other participating jurisdictions, grade 4 public schools: 2005



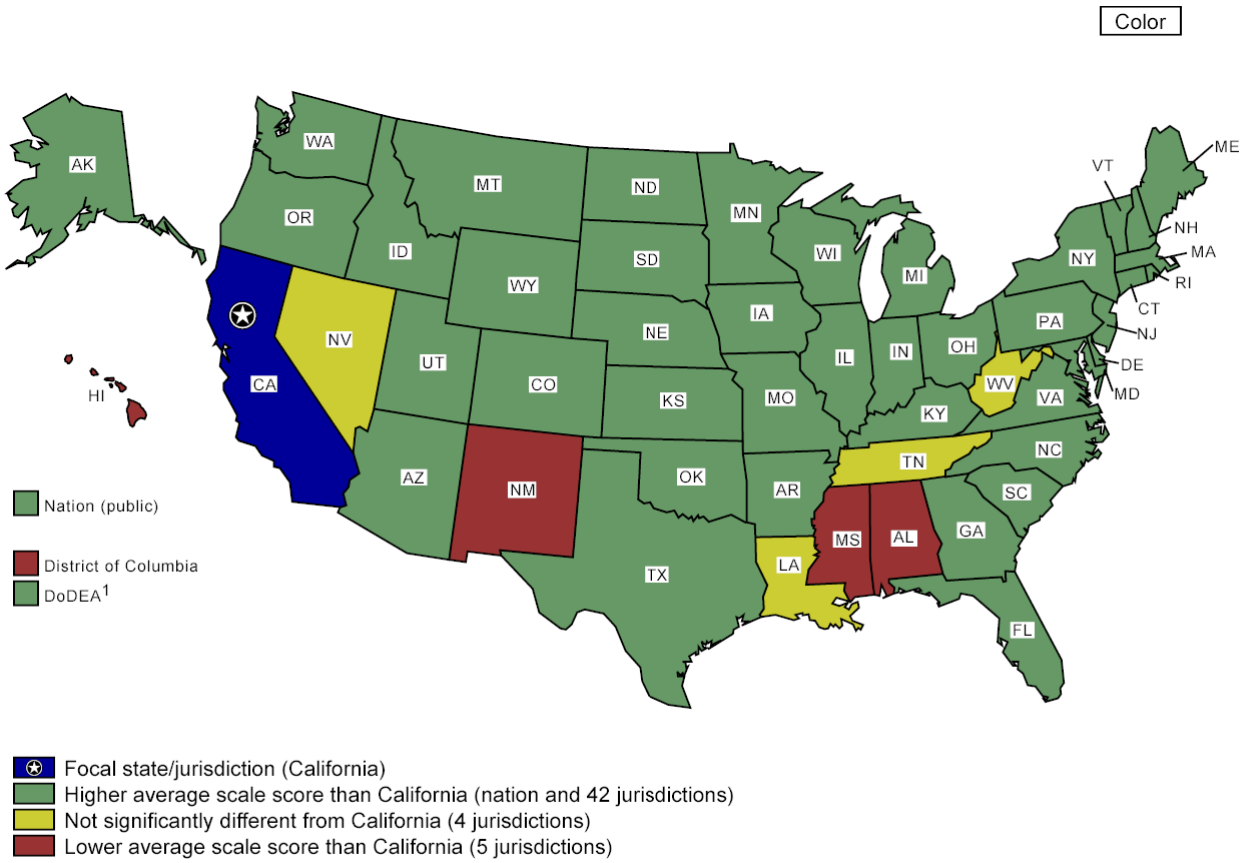
[1] Department of Defense Education Activity schools (domestic and overseas).

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2005 Mathematics Assessment.

Figure 2-B

The Nation's Report Card 2005 State Assessment

California's average mathematics scale score compared with scores for the nation and other participating jurisdictions, grade 8 public schools: 2005



Focal state/jurisdiction (California)
Higher average scale score than California (nation and 42 jurisdictions)
Not significantly different from California (4 jurisdictions)
Lower average scale score than California (5 jurisdictions)

[1] Department of Defense Education Activity schools (domestic and overseas).
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2005 Mathematics Assessment.

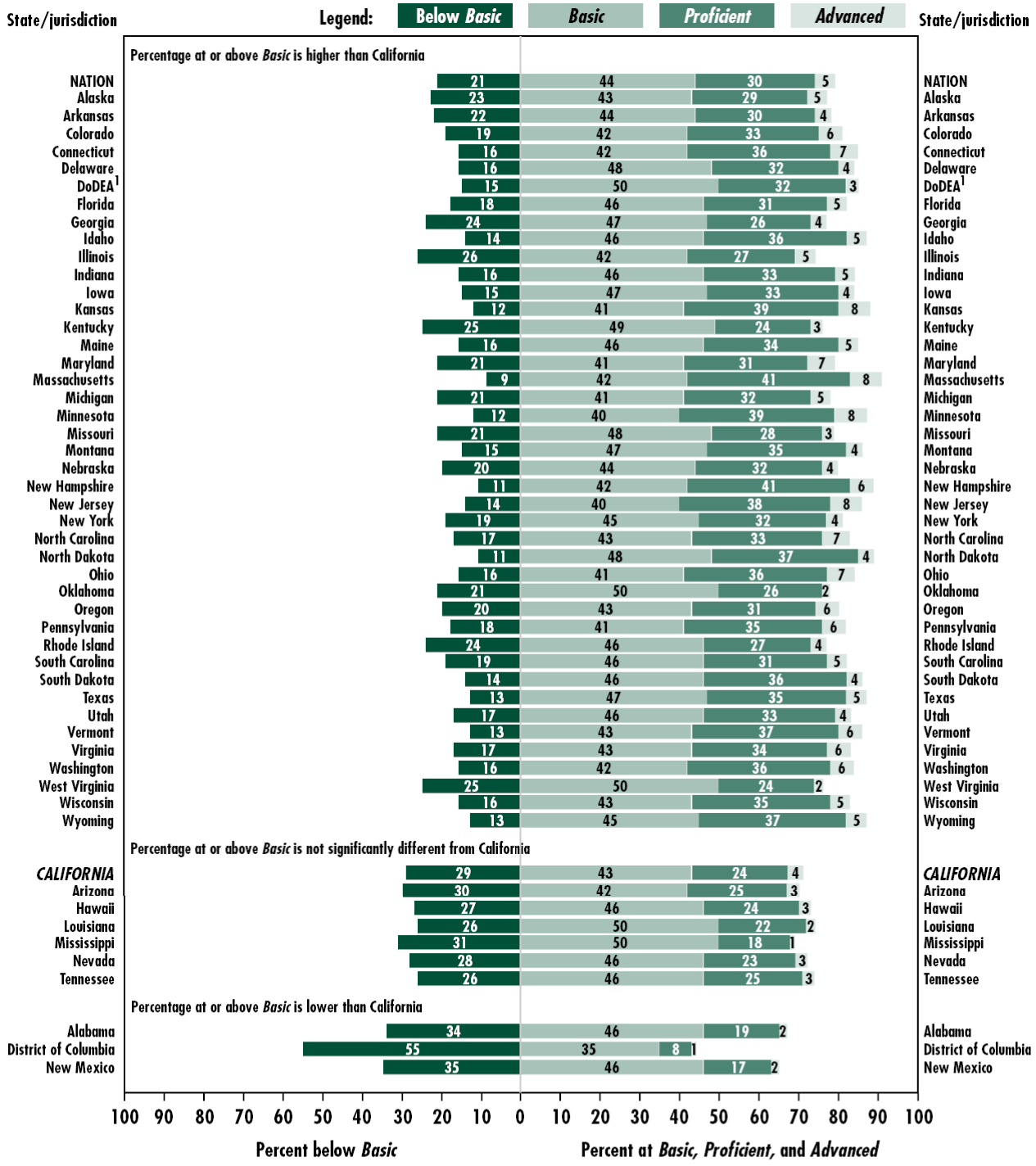
Comparisons by Achievement Levels

Figures 3-A and 3-B permit comparisons of all jurisdictions (and the nation) participating in the NAEP 2005 mathematics assessment in terms of percentages of grade 4 and 8 students performing at or above *Basic.* The participating states and jurisdictions are grouped into categories reflecting whether the percentage of their students performing at or above *Basic* (including *Proficient* and *Advanced*) was found to be higher than, not significantly different from, or lower than the percentage in California. Note that the selected state and the nation are listed first in their category and the other states and jurisdictions within each category are listed alphabetically; statistical comparisons among jurisdictions in each of the three categories are not included in this report.

The Nation's Report Card 2005 State Assessment

Figure 3-A

Percentage of students within each mathematics achievement level, and California's percentage at or above *Basic* compared with the nation and other participating jurisdictions, grade 4 public schools: By state, 2005

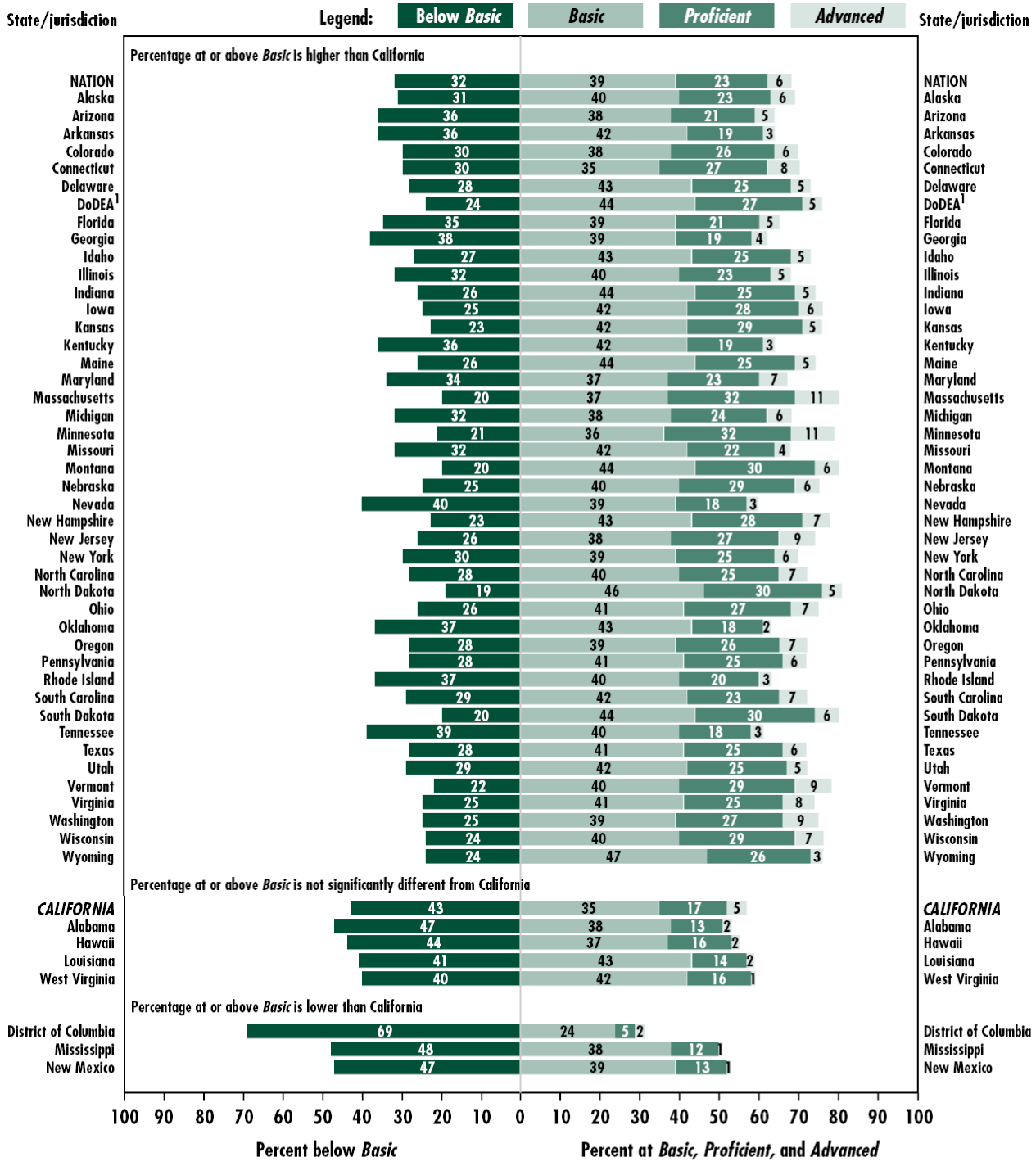


[1] Department of Defense Education Activity schools (domestic and overseas).
NOTE: The bars above contain percentages of students in each NAEP mathematics achievement level. Achievement levels corresponding to each population of students are aligned at the point where the *Basic* category begins, so that they may be compared at *Basic* and above. Detail may not sum to totals because of rounding. The shaded bars are graphed using unrounded numbers. Significance tests used a multiple-comparison procedure based on all jurisdictions that participated.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2005 Mathematics Assessment.

The Nation's Report Card 2005 State Assessment

Figure 3-B

Percentage of students within each mathematics achievement level, and California's percentage at or above *Basic* compared with the nation and other participating jurisdictions, grade 8 public schools: By state, 2005



[1] Department of Defense Education Activity schools (domestic and overseas).
NOTE: The bars above contain percentages of students in each NAEP mathematics achievement level. Achievement levels corresponding to each population of students are aligned at the point where the *Basic* category begins, so that they may be compared at *Basic* and above. Detail may not sum to totals because of rounding. The shaded bars are graphed using unrounded numbers. Significance tests used a multiple-comparison procedure based on all jurisdictions that participated.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2005 Mathematics Assessment.

Mathematics Performance of Selected Student Groups

This section of the report presents trend results for students in California and the nation by demographic characteristics. Student performance data are reported for

- gender
- race/ethnicity
- student eligibility for free/reduced-price school lunch
- type of location (for 2005 only)
- parents' highest level of education (for grade 8 only).

Definitions of NAEP reporting groups are available on the NAEP website (http://nces.ed.gov/nationsreportcard/mathematics/results2005/interpret-results.asp#RepGroups).

Each of the variables is reported in tables that present the percentage of students belonging to each group in the first column and the average scale score in the second column. The columns to the right show the percentage of students below *Basic* and at or above each achievement level.

Differences between scores or percentages mentioned in the text are calculated using unrounded values. The result of subtracting the rounded values displayed in the tables may differ (usually by one point) from the results that would be obtained by subtracting the unrounded values.

The reader is cautioned against making causal inferences about the performance of groups of students relative to demographic variables. Many factors other than those discussed here, including home and school factors, may affect student performance.

NAEP collects information on many additional variables, including school and home factors related to achievement. All of this information is in an interactive database available on the NAEP website (http://nces.ed.gov/nationsreportcard/).

Gender

Information on student gender is reported by the student's school when rosters of the students eligible to be assessed are submitted to NAEP.

Tables 3-A and 3-B show average scale scores and achievement-level data for public school students at grades 4 and 8 in California and the nation by gender. In 2000 only, results were obtained for student samples for which accommodations were permitted and those for which accommodations were not permitted. However, in the text of this report, comparisons to 2000 results refer only to the sample for which accommodations were permitted.

Grade 4 Scale Score Results by Gender

- In 2005, male students in California had an average score that was higher than that of female students by 2 points. In 1992, there was no significant difference between the average score of male and female students.
- In 2005, male students in California had an average scale score in mathematics (231) that was lower than that of male students in public schools across the nation (238). Similarly, female students in California had an average scale score (229) that was lower than that of female students across the nation (236).
- In California, the average scale scores of both males and females were higher in 2005 than in 1992.
- In California, the average scale scores of both males and females were higher in 2005 than in 1996.
- In California, the average scale scores of both males and females were higher in 2005 than in 2000.
- In California, the average scale score of males was not found to differ significantly in 2005 from the scores in 2003; however, that of females was higher in 2005 than in 2003.

Grade 4 Achievement-Level Results by Gender

- In the 2005 assessment, 30 percent of males and 26 percent of females performed at or above *Proficient* in California. The difference between these percentages was statistically significant.
- The percentage of males in California's public schools who were at or above *Proficient* in 2005 (30 percent) was smaller than that of males in the nation (37 percent).
- The percentage of females in California's public schools who were at or above *Proficient* in 2005 (26 percent) was smaller than that of females in the nation (33 percent).
- In California, the percentages of both males and females performing at or above *Proficient* were greater in 2005 than in 1992.
- In California, the percentages of both males and females performing at or above *Proficient* were greater in 2005 than in 1996.
- In California, the percentages of both males and females performing at or above *Proficient* were greater in 2005 than in 2000.
- In California, the percentage of males performing at or above *Proficient* was not found to differ significantly in 2005 from the percentages in 2003; however, that of females was greater in 2005 than in 2003.

Table 3-A

The Nation's Report Card 2005 State Assessment

Average mathematics scale scores and percentage of students at or above each achievement level, by gender, grade 4 public schools: various years, 1992–2005

Gender		Percentage of students	Average scale score	Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
Male							
1992[1]	Nation (public)	50	220*	41*	59*	19*	2*
	California	52	209*	53*	47*	13*	2*
1996[1]	Nation (public)	51	224*	37*	63*	22*	3*
	California	51	211*	53*	47*	12*	1*
2000[1]	Nation (public)	51	227*	32*	68*	27*	3*
	California	50	213*	49*	51*	14*	1*
2000	Nation (public)	51	225*	35*	65*	25*	3*
	California	51	212*	51*	49*	13*	1*
2003	Nation (public)	51	235*	23*	77*	34*	5*
	California	51	229	31	69	28	4
2005	Nation (public)	51	238	20	80	37	6
	California	51	231	28	72	30	4
Female							
1992[1]	Nation (public)	50	218*	44*	56*	16*	1*
	California	48	208*	54*	46*	12*	1*
1996[1]	Nation (public)	49	221*	39*	61*	17*	1*
	California	49	207*	56*	44*	9*	1*
2000[1]	Nation (public)	49	225*	34*	66*	22*	2*
	California	50	214*	47*	53*	15*	1*
2000	Nation (public)	49	223*	38*	62*	20*	1*
	California	49	213*	50*	50*	13*	1
2003	Nation (public)	49	233*	25*	75*	29*	3*
	California	49	225*	35*	65*	22*	2
2005	Nation (public)	49	236	21	79	33	4
	California	49	229	30	70	26	3

* Value is significantly different from the value for the same jurisdiction in 2005.

[1] Accommodations were not permitted for this assessment.

NOTE: The NAEP grade 4 mathematics scale ranges from 0 to 500. Achievement levels correspond to the following points on the NAEP mathematics scale: below *Basic*, 213 or lower; *Basic*, 214–248; *Proficient*, 249–281; and *Advanced*, 282 and above. All differences were tested for statistical significance at the .05 level using unrounded numbers. Detail may not sum to totals because of rounding. Performance comparisons may be affected by differences in exclusion rates for students with disabilities and English language learners in the NAEP samples and by changes in sample sizes.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1992–2005 Mathematics Assessments.

Grade 8 Scale Score Results by Gender

- In 2005, male students in California had an average score that was not found to be significantly different from that of female students. In 1990, there was no significant difference between the average score of male and female students.
- In 2005, male students in California had an average scale score in mathematics (269) that was lower than that of male students in public schools across the nation (278). Similarly, female students in California had an average scale score (268) that was lower than that of female students across the nation (277).
- In California, the average scale scores of both males and females were higher in 2005 than in 1990.
- In California, the average scale scores of both males and females were higher in 2005 than in 1992.
- In California, the average scale score of males was not found to differ significantly in 2005 from the scores in 1996; however, that of females was higher in 2005 than in 1996.
- In California, the average scale scores of both males and females were higher in 2005 than in 2000.
- In California, the average scale scores of both males and females were not found to differ significantly in 2005 from the scores in 2003.

Grade 8 Achievement-Level Results by Gender

- In the 2005 assessment, 23 percent of males and 20 percent of females performed at or above *Proficient* in California. The difference between these percentages was statistically significant.
- The percentage of males in California's public schools who were at or above *Proficient* in 2005 (23 percent) was smaller than that of males in the nation (30 percent).
- The percentage of females in California's public schools who were at or above *Proficient* in 2005 (20 percent) was smaller than that of females in the nation (27 percent).
- In California, the percentages of both males and females performing at or above *Proficient* were greater in 2005 than in 1990.
- In California, the percentage of males performing at or above *Proficient* was greater in 2005 than in 1992; however, that of females was not found to differ significantly in 2005 from the percentages in 1992.
- In California, the percentage of males performing at or above *Proficient* was not found to differ significantly in 2005 from the percentages in 1996; however, that of females was greater in 2005 than in 1996.
- In California, the percentages of both males and females performing at or above *Proficient* were greater in 2005 than in 2000.
- In California, the percentages of both males and females performing at or above *Proficient* were not found to differ significantly in 2005 from the percentages in 2003.

Table 3-B

The Nation's Report Card 2005 State Assessment

Average mathematics scale scores and percentage of students at or above each achievement level, by gender, grade 8 public schools: various years, 1990–2005

Gender		Percentage of students	Average scale score	Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
Male							
1990[1]	Nation (public)	51	262*	49*	51*	17*	2*
	California	51	258*	54*	46*	14*	2*
1992[1]	Nation (public)	52	266*	45*	55*	20*	3*
	California	49	260*	50*	50*	16*	2*
1996[1]	Nation (public)	52	270*	40*	60*	24*	4*
	California	49	264	48	52	19	4
2000[1]	Nation (public)	50	276*	34*	66*	29	6
	California	51	262*	47	53	19*	2*
2000	Nation (public)	50	273*	38*	62*	26*	5
	California	51	259*	50*	50*	17*	2*
2003	Nation (public)	50	277*	33*	67*	29*	6*
	California	51	268	43	57	23	5
2005	Nation (public)	51	278	32	68	30	6
	California	51	269	42	58	23	5
Female							
1990[1]	Nation (public)	49	261*	49*	51*	14*	2*
	California	49	255*	56*	44*	11*	1*
1992[1]	Nation (public)	48	267*	44*	56*	20*	3*
	California	51	262*	49*	51*	17	2
1996[1]	Nation (public)	48	271*	39*	61*	21*	3*
	California	51	261*	49	51	15*	2*
2000[1]	Nation (public)	50	273*	36*	64*	24*	4
	California	49	262*	49	51	16*	3
2000	Nation (public)	50	271*	38*	62*	23*	4
	California	49	260*	50*	50*	16*	3
2003	Nation (public)	50	275*	34*	66*	26*	4*
	California	49	266	45	55	21	4
2005	Nation (public)	49	277	33	67	27	5
	California	49	268	44	56	20	4

* Value is significantly different from the value for the same jurisdiction in 2005.

[1] Accommodations were not permitted for this assessment.

NOTE: The NAEP grade 8 mathematics scale ranges from 0 to 500. Achievement levels correspond to the following points on the NAEP mathematics scale: below *Basic*, 261 or lower; *Basic*, 262–298; *Proficient*, 299–332; and *Advanced*, 333 and above. All differences were tested for statistical significance at the .05 level using unrounded numbers. Detail may not sum to totals because of rounding. Performance comparisons may be affected by differences in exclusion rates for students with disabilities and English language learners in the NAEP samples and by changes in sample sizes.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1990–2005 Mathematics Assessments.

Race/Ethnicity

Schools reported the racial/ethnic subgroup that best described the students eligible to be assessed. The six mutually exclusive categories are White, Black, Hispanic, Asian/Pacific Islander, American Indian/Alaska Native, and Unclassified. Black includes African American, Hispanic includes Latino, and Pacific Islander includes Native Hawaiian. Race categories exclude Hispanic origin unless specified. Tables 4-A and 4-B show average scale scores and achievement-level data for public school students at grades 4 and 8 in California and the nation by race/ethnicity. In 2000 only, results were obtained for student samples for which accommodations were permitted and those for which accommodations were not permitted. However, in the text of this report, comparisons to 2000 results refer only to the sample for which accommodations were permitted.

Grade 4 Scale Score Results by Race/Ethnicity

- In 2005, White students in California had an average scale score that was higher than those of Black, Hispanic, and American Indian/Alaska Native students, but was lower than that of Asian/Pacific Islander students.
- The average scale scores of White, Black, Hispanic, and Asian/Pacific Islander students in California were higher in 2005 than in 1992.
- The average scale scores of White, Black, Hispanic, and Asian/Pacific Islander students in California were higher in 2005 than in 1996.
- The average scale scores of White, Black, Hispanic, and Asian/Pacific Islander students in California were higher in 2005 than in 2000.
- The average scale score of Hispanic students in California was higher in 2005 than in 2003. The average scale scores of White, Black, and Asian/Pacific Islander students in California were not significantly different between 2003 and 2005.
- In 2005, Black students had an average score that was lower than that of White students by 29 points. This performance gap was narrower than that of 1992 (39 points).
- In 2005, Hispanic students had an average score that was lower than that of White students by 25 points. In 1992, the average score for Hispanic students was lower than that of White students by 31 points.

Grade 4 Achievement-Level Results by Race/Ethnicity

- In California in 2005, the percentage of White students performing at or above *Proficient* was greater than those of Black, Hispanic, and American Indian/Alaska Native students, but was not found to be significantly different from that of Asian/Pacific Islander students.
- The respective percentages of White, Black, Hispanic, and Asian/Pacific Islander students in California performing at or above *Proficient* were greater in 2005 than in 1992.
- The respective percentages of White, Black, Hispanic, and Asian/Pacific Islander students in California performing at or above *Proficient* were greater in 2005 than in 1996.
- The respective percentages of White, Black, Hispanic, and Asian/Pacific Islander students in California performing at or above *Proficient* were greater in 2005 than in 2000.
- The percentage of Hispanic students in California performing at or above *Proficient* was greater in 2005 than in 2003. The differences between the percentages of White, Black, and Asian/Pacific Islander students in California performing at or above *Proficient* in 2003 and the respective percentages in 2005 were not found to be significant.

Table 4-A

The Nation's Report Card 2005 State Assessment

Average mathematics scale scores and percentage of students at or above each achievement level, by race/ethnicity, grade 4 public schools: various years, 1992–2005

Race/ethnicity		Percentage of students	Average scale score	Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
White							
1992[1]	Nation (public)	72*	227*	32*	68*	22*	2*
	California	50*	221*	40*	60*	18*	2*
1996[1]	Nation (public)	71*	230*	27*	73*	25*	3*
	California	44*	223*	36*	64*	17*	1*
2000[1]	Nation (public)	67*	234*	22*	78*	32*	3*
	California	38*	229*	28*	72*	25*	2*
2000	Nation (public)	62*	233*	24*	76*	30*	3*
	California	37	228*	28*	72*	24*	1*
2003	Nation (public)	58*	243*	13*	87*	42*	5*
	California	32	243	14	86	42	5
2005	Nation (public)	57	246	11	89	47	7
	California	31	245	12	88	46	7
Black							
1992[1]	Nation (public)	18	192*	78*	22*	2*	#
	California	7	182*	80*	20*	2*	#
1996[1]	Nation (public)	17	199*	70*	30*	4*	#
	California	9	188*	82*	18*	2*	#
2000[1]	Nation (public)	17	204*	64*	36*	5*	#
	California	10	‡	‡	‡	‡	‡
2000	Nation (public)	17	203*	65*	35*	4*	#
	California	10	194*	75*	25*	3*	#
2003	Nation (public)	17	216*	46*	54*	10*	#*
	California	7	213	49	51	9	#
2005	Nation (public)	17	220	40	60	13	1
	California	7	215	47	53	12	1

See notes at end of table.

Table 4-A

The Nation's Report Card 2005 State Assessment

Average mathematics scale scores and percentage of students at or above each achievement level, by race/ethnicity, grade 4 public schools: various years, 1992–2005—Continued

Race/ethnicity		Percentage of students	Average scale score	Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
Hispanic							
1992[1]	Nation (public)	7*	201*	68*	32*	5*	#
	California	30*	190*	75*	25*	4*	#
1996[1]	Nation (public)	9*	204*	63*	37*	7*	#
	California	34*	196*	73*	27*	3*	#
2000[1]	Nation (public)	11*	209*	55*	45*	8*	#
	California	37*	200*	66*	34*	4*	#
2000	Nation (public)	16*	207*	59*	41*	7*	#*
	California	40	201*	68*	32*	4*	#
2003	Nation (public)	19*	221*	38*	62*	15*	1*
	California	49	216*	47*	53*	11*	#
2005	Nation (public)	20	225	33	67	19	1
	California	49	219	41	59	14	1
Asian/Pacific Islander							
1992[1]	Nation (public)	3*	231*	26*	74*	27*	4*
	California	12	218*	43*	57*	18*	2*
1996[1]	Nation (public)	3*	225*	35*	65*	20*	5*
	California	11	213*	49*	51*	16*	2*
2000[1]	Nation (public)	‡	‡	‡	‡	‡	‡
	California	12	225*	32*	68*	23*	2*
2000	Nation (public)	‡	‡	‡	‡	‡	‡
	California	10	221*	38*	62*	19*	2
2003	Nation (public)	4	246*	13*	87*	48*	10*
	California	11	246	13	87	49	9
2005	Nation (public)	4	251	11	89	54	14
	California	10	249	11	89	51	12

See notes at end of table.

Table 4-A

The Nation's Report Card 2005 State Assessment

Average mathematics scale scores and percentage of students at or above each achievement level, by race/ethnicity, grade 4 public schools: various years, 1992–2005—Continued

Race/ethnicity		Percentage of students	Average scale score	Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
American Indian/Alaska Native							
1992[1]	Nation (public)	1	‡	‡	‡	‡	‡
	California	1	‡	‡	‡	‡	‡
1996[1]	Nation (public)	1*	‡	‡	‡	‡	‡
	California	1	‡	‡	‡	‡	‡
2000[1]	Nation (public)	1	‡	‡	‡	‡	‡
	California	1	‡	‡	‡	‡	‡
2000	Nation (public)	1	‡	‡	‡	‡	‡
	California	1	‡	‡	‡	‡	‡
2003	Nation (public)	1	224*	35	65	18*	1
	California	#*	‡	‡	‡	‡	‡
2005	Nation (public)	1	227	31	69	22	2
	California	1	228	31	69	27	4
Unclassified[2]							
1992[1]	Nation (public)	#*	‡	‡	‡	‡	‡
	California	1*	‡	‡	‡	‡	‡
1996[1]	Nation (public)	1	‡	‡	‡	‡	‡
	California	1	‡	‡	‡	‡	‡
2000[1]	Nation (public)	1*	‡	‡	‡	‡	‡
	California	2*	‡	‡	‡	‡	‡
2000	Nation (public)	1	‡	‡	‡	‡	‡
	California	2	‡	‡	‡	‡	‡
2003	Nation (public)	1*	236*	20	80	32*	3
	California	#*	‡	‡	‡	‡	‡
2005	Nation (public)	1	240	18	82	38	5
	California	1	239	21	79	42	6

Estimate rounds to zero.
‡ Reporting standards are not met.
* Value is significantly different from the value for the same jurisdiction in 2005.

[1] Accommodations were not permitted for this assessment.

[2] "Unclassified" students are those whose school-reported race was "other" or "unavailable," or was missing, and who self-reported more than one race category or none. The six mutually exclusive categories are White, Black, Hispanic, Asian/Pacific Islander, American Indian/Alaska Native, and Unclassified. Black includes African American, Hispanic includes Latino, and Pacific Islander includes Native Hawaiian. Race categories exclude Hispanic origin.

NOTE: The NAEP grade 4 mathematics scale ranges from 0 to 500. Achievement levels correspond to the following points on the NAEP mathematics scale: below *Basic*, 213 or lower; *Basic*, 214–248; *Proficient*, 249–281; and *Advanced*, 282 and above. All differences were tested for statistical significance at the .05 level using unrounded numbers. Detail may not sum to totals because of rounding. Performance comparisons may be affected by differences in exclusion rates for students with disabilities and English language learners in the NAEP samples and by changes in sample sizes.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1992–2005 Mathematics Assessments.

Grade 8 Scale Score Results by Race/Ethnicity

- In 2005, White students in California had an average scale score that was higher than those of Black and Hispanic students, but was lower than that of Asian/Pacific Islander students.
- The average scale scores of White, Black, Hispanic, and Asian/Pacific Islander students in California were higher in 2005 than in 1990.
- The average scale scores of White, Black, Hispanic, and Asian/Pacific Islander students in California were higher in 2005 than in 1992.
- The average scale scores of White, Hispanic, and Asian/Pacific Islander students in California were higher in 2005 than in 1996. The average scale score of Black students in California was not significantly different between 1996 and 2005.
- The average scale scores of White, Black, Hispanic, and Asian/Pacific Islander students in California were higher in 2005 than in 2000.
- The average scale score of Hispanic students in California was higher in 2005 than in 2003. The average scale scores of White, Black, and Asian/Pacific Islander students in California were not significantly different between 2003 and 2005.
- In 2005, Black students had an average score that was lower than that of White students by 35 points. In 1990, the average score for Black students was lower than that of White students by 38 points.
- In 2005, Hispanic students had an average score that was lower than that of White students by 29 points. In 1990, the average score for Hispanic students was lower than that of White students by 34 points.

Grade 8 Achievement-Level Results by Race/Ethnicity

- In California in 2005, the percentage of White students performing at or above *Proficient* was smaller than that of Asian/Pacific Islander students, but was greater than those of Black and Hispanic students.
- The respective percentages of White, Black, Hispanic, and Asian/Pacific Islander students in California performing at or above *Proficient* were greater in 2005 than in 1990.
- The respective percentages of White, Black, Hispanic, and Asian/Pacific Islander students in California performing at or above *Proficient* were greater in 2005 than in 1992.
- The respective percentages of White, Hispanic, and Asian/Pacific Islander students in California performing at or above *Proficient* were greater in 2005 than in 1996. The differences between the percentages of Black students in California performing at or above *Proficient* in 1996 and the percentage in 2005 was not found to be significant.
- The percentage of White students in California performing at or above *Proficient* was greater in 2005 than in 2000. The differences between the percentages of Black, Hispanic, and Asian/Pacific Islander students in California performing at or above *Proficient* in 2000 and the respective percentages in 2005 were not found to be significant.
- The differences between the percentages of White, Black, Hispanic, and Asian/Pacific Islander students in California performing at or above *Proficient* in 2003 and the respective percentages in 2005 were not found to be significant.

Table 4-B

The Nation's Report Card 2005 State Assessment

Average mathematics scale scores and percentage of students at or above each achievement level, by race/ethnicity, grade 8 public schools: various years, 1990–2005

Race/ethnicity		Percentage of students	Average scale score	Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
White							
1990[1]	Nation (public)	73*	269*	41*	59*	18*	3*
	California	49*	270*	40*	60*	18*	2*
1992[1]	Nation (public)	72*	276*	34*	66*	25*	3*
	California	50*	275*	33*	67*	23*	3*
1996[1]	Nation (public)	70*	280*	28*	72*	29*	5*
	California	43*	277*	30	70	26*	3*
2000[1]	Nation (public)	69*	284*	24*	76*	33*	6
	California	38	278*	30	70	26*	4*
2000	Nation (public)	63*	283*	25*	75*	33*	6*
	California	37	277*	30	70	26*	4*
2003	Nation (public)	62*	287*	21	79	36*	7*
	California	37	283	26	74	34	7
2005	Nation (public)	60	288	21	79	37	7
	California	33	284	26	74	34	7
Black							
1990[1]	Nation (public)	16	236*	79*	21*	5*	#
	California	7	231*	81*	19*	2*	#
1992[1]	Nation (public)	17	236*	81*	19*	2*	#
	California	7	233*	80*	20*	2*	#
1996[1]	Nation (public)	16	241*	74*	26*	4*	#
	California	9	244	69	31	7	1
2000[1]	Nation (public)	14*	245*	70*	30*	5*	#
	California	8	241*	75	25	4	#
2000	Nation (public)	17	243*	70*	30*	5*	#*
	California	9	235*	75	25	4	#
2003	Nation (public)	17	252*	61*	39*	7*	#
	California	9	246	65	35	6	1
2005	Nation (public)	17	254	59	41	8	1
	California	8	248	65	35	7	1

See notes at end of table.

Table 4-B

The Nation's Report Card 2005 State Assessment

Average mathematics scale scores and percentage of students at or above each achievement level, by race/ethnicity, grade 8 public schools: various years, 1990–2005—Continued

Race/ethnicity		Percentage of students	Average scale score	Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
Hispanic							
1990[1]	Nation (public)	7*	245*	67*	33*	7*	1
	California	30*	236*	78*	22*	3*	#
1992[1]	Nation (public)	8*	247*	67*	33*	6*	#*
	California	32*	239*	74*	26*	3*	#
1996[1]	Nation (public)	9*	250*	62*	38*	8*	1
	California	34*	245*	70*	30*	4*	#
2000[1]	Nation (public)	11*	252*	60*	40*	8*	#*
	California	40	245*	68	32	7	#
2000	Nation (public)	14*	252*	60*	40*	8*	#*
	California	41	242*	70*	30*	6	#
2003	Nation (public)	15*	258*	53*	47*	11*	1
	California	39*	250*	63	37	8	1
2005	Nation (public)	17	261	50	50	13	1
	California	45	254	58	42	9	1
Asian/Pacific Islander							
1990[1]	Nation (public)	2*	‡	‡	‡	‡	‡
	California	12	267*	45*	55*	19*	3*
1992[1]	Nation (public)	2*	290	25	75	43	14
	California	10	277*	34*	66*	30*	5*
1996[1]	Nation (public)	‡	‡	‡	‡	‡	‡
	California	11	278*	35*	65*	31*	9
2000[1]	Nation (public)	4*	286	27*	73*	40	12
	California	12	282*	28	72	34	9
2000	Nation (public)	4	287	27*	73*	40	12
	California	12	283*	27	73	34	8
2003	Nation (public)	4	289*	23*	77*	42*	12
	California	13	287	26	74	39	11
2005	Nation (public)	5	294	19	81	46	16
	California	12	293	20	80	45	14

See notes at end of table.

Table 4-B

The Nation's Report Card 2005 State Assessment

Average mathematics scale scores and percentage of students at or above each achievement level, by race/ethnicity, grade 8 public schools: various years, 1990–2005—Continued

Race/ethnicity		Percentage of students	Average scale score	Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
American Indian/Alaska Native							
1990[1]	Nation (public)	1	‡	‡	‡	‡	‡
	California	1	‡	‡	‡	‡	‡
1992[1]	Nation (public)	1	‡	‡	‡	‡	‡
	California	#	‡	‡	‡	‡	‡
1996[1]	Nation (public)	1	‡	‡	‡	‡	‡
	California	1	‡	‡	‡	‡	‡
2000[1]	Nation (public)	1	‡	‡	‡	‡	‡
	California	1	‡	‡	‡	‡	‡
2000	Nation (public)	1	‡	‡	‡	‡	‡
	California	#	‡	‡	‡	‡	‡
2003	Nation (public)	1	265	46	54	16	2
	California	1	‡	‡	‡	‡	‡
2005	Nation (public)	1	266	45	55	14	2
	California	1	‡	‡	‡	‡	‡
Unclassified[2]							
1990[1]	Nation (public)	#*	‡	‡	‡	‡	‡
	California	1	‡	‡	‡	‡	‡
1992[1]	Nation (public)	1	‡	‡	‡	‡	‡
	California	1	‡	‡	‡	‡	‡
1996[1]	Nation (public)	#*	‡	‡	‡	‡	‡
	California	2	‡	‡	‡	‡	‡
2000[1]	Nation (public)	#	‡	‡	‡	‡	‡
	California	1	‡	‡	‡	‡	‡
2000	Nation (public)	1	‡	‡	‡	‡	‡
	California	1	‡	‡	‡	‡	‡
2003	Nation (public)	1*	276	30	70	24	3
	California	1	‡	‡	‡	‡	‡
2005	Nation (public)	1	278	31	69	29	7
	California	1	281	29	71	34	5

Estimate rounds to zero.
‡ Reporting standards are not met.
* Value is significantly different from the value for the same jurisdiction in 2005.
[1] Accommodations were not permitted for this assessment.
[2] "Unclassified" students are those whose school-reported race was "other" or "unavailable," or was missing, and who self-reported more than one race category or none. The six mutually exclusive categories are White, Black, Hispanic, Asian/Pacific Islander, American Indian/Alaska Native, and Unclassified. Black includes African American, Hispanic includes Latino, and Pacific Islander includes Native Hawaiian. Race categories exclude Hispanic origin.
NOTE: The NAEP grade 8 mathematics scale ranges from 0 to 500. Achievement levels correspond to the following points on the NAEP mathematics scale: below *Basic*, 261 or lower; *Basic*, 262–298; *Proficient*, 299–332; and *Advanced*, 333 and above. All differences were tested for statistical significance at the .05 level using unrounded numbers. Detail may not sum to totals because of rounding. Performance comparisons may be affected by differences in exclusion rates for students with disabilities and English language learners in the NAEP samples and by changes in sample sizes.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1990–2005 Mathematics Assessments.

Student Eligibility for Free/Reduced-Price School Lunch

NAEP collects data on eligibility for the federal program providing free or reduced-price school lunches. The free/reduced-price lunch component of the National School Lunch Program (NSLP) offered through the U.S. Department of Agriculture (USDA) is designed to ensure that children near or below the poverty line receive nourishing meals. Eligibility is determined through the USDA's Income Eligibility Guidelines, and results for this category of students are included as an indicator of lower family income. NAEP first collected information on participation in this program in 1996; therefore, cross-year comparisons to assessments prior to 1996 cannot be made.

Tables 5-A and 5-B show average scale scores and achievement-level data for public school students at grades 4 and 8 in California and the nation by eligibility for free/reduced-price lunch. In 2000 only, results were obtained for student samples for which accommodations were permitted and those for which accommodations were not permitted. However, in the text of this report, comparisons to 2000 results refer only to the sample for which accommodations were permitted.

Grade 4 Scale Score Results by Free/Reduced-Price Lunch Eligibility

- In 2005, students in California eligible for free/reduced-price lunch had an average mathematics scale score of 219. This was lower than that of students in California not eligible for this program (244).
- In 2005, students who were eligible for free/reduced-price school lunch had an average score that was lower than that of students who were not eligible for free/reduced-price school lunch by 25 points. In 1996, the average score for students who were eligible for free/reduced-price school lunch was lower than the score of those not eligible by 28 points.
- Students in California eligible for free/reduced-price lunch had an average scale score (219) in 2005 that was lower than that of students in the nation who were eligible (225).
- In California, students eligible for free/reduced-priced lunch had an average mathematics scale score in 2005 (219) that was higher than that of eligible students in 1996 (194).
- In California, students eligible for free/reduced-priced lunch had an average mathematics scale score in 2005 (219) that was higher than that of eligible students in 2000 (202).
- In California, students eligible for free/reduced-priced lunch had an average mathematics scale score in 2005 (219) that was higher than that of eligible students in 2003 (216).

Grade 4 Achievement-Level Results by Free/Reduced-Price Lunch Eligibility

- In California in 2005, 15 percent of students who were eligible for free/reduced-price lunch and 45 percent of those who were not eligible for this program performed at or above *Proficient*. These percentages were found to be significantly different from one another.
- For students in California in 2005 who were eligible for free/reduced-price lunch, the percentage at or above *Proficient* (15 percent) was smaller than the corresponding percentage for their counterparts around the nation (19 percent).
- In California, the percentage of students eligible for free/reduced-price lunch who performed at or above *Proficient* for 2005 (15 percent) was greater than the corresponding percentage (4 percent) for 1996.
- In California, the percentage of students eligible for free/reduced-price lunch who performed at or above *Proficient* for 2005 (15 percent) was greater than the corresponding percentage (5 percent) for 2000.
- In California, the percentage of students eligible for free/reduced-price lunch who performed at or above *Proficient* for 2005 (15 percent) was greater than the corresponding percentage (11 percent) for 2003.

The Nation's Report Card 2005 State Assessment

Table 5-A

Average mathematics scale scores and percentage of students at or above each achievement level, by eligibility for free/reduced-price school lunch, grade 4 public schools: various years, 1996–2005

Eligibility status		Percentage of students	Average scale score	Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
Eligible							
1996[1]	Nation (public)	34*	207*	59*	41*	8*	#*
	California	44*	194*	74*	26*	4*	#
2000[1]	Nation (public)	35*	210*	54*	46*	9*	#*
	California	49	200*	65*	35*	5*	#
2000	Nation (public)	40*	208*	57*	43*	7*	#*
	California	52	202*	65*	35*	5*	#
2003	Nation (public)	44*	222*	38*	62*	15*	1*
	California	52	216*	46*	54*	11*	1
2005	Nation (public)	46	225	33	67	19	1
	California	55	219	41	59	15	1
Not eligible							
1996[1]	Nation (public)	52	231*	27*	73*	25*	3*
	California	40	222*	37*	63*	17*	2*
2000[1]	Nation (public)	52	236*	21*	79*	33*	4*
	California	40	229*	28*	72*	25*	2*
2000	Nation (public)	49	235*	23*	77*	32*	4*
	California	38	227*	30*	70*	23*	1*
2003	Nation (public)	52	244*	12*	88*	45*	6*
	California	44	241*	16*	84*	41	6
2005	Nation (public)	52	248	10	90	50	8
	California	41	244	14	86	45	7
Information not available							
1996[1]	Nation (public)	13*	‡	‡	‡	‡	‡
	California	16*	‡	‡	‡	‡	‡
2000[1]	Nation (public)	13*	235	23	77	35	3
	California	12	‡	‡	‡	‡	‡
2000	Nation (public)	11*	236	22	78	35	4
	California	10	‡	‡	‡	‡	‡
2003	Nation (public)	4*	235	23	77	34	4
	California	4	‡	‡	‡	‡	‡
2005	Nation (public)	2	237	21	79	36	5
	California	4	‡	‡	‡	‡	‡

Estimate rounds to zero.
‡ Reporting standards are not met.
* Value is significantly different from the value for the same jurisdiction in 2005.
[1] Accommodations were not permitted for this assessment.
NOTE: The NAEP grade 4 mathematics scale ranges from 0 to 500. Achievement levels correspond to the following points on the NAEP mathematics scale: below *Basic*, 213 or lower; *Basic*, 214–248; *Proficient*, 249–281; and *Advanced*, 282 and above. All differences were tested for statistical significance at the .05 level using unrounded numbers. Detail may not sum to totals because of rounding. Performance comparisons may be affected by differences in exclusion rates for students with disabilities and English language learners in the NAEP samples and by changes in sample sizes.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1996–2005 Mathematics Assessments.

Grade 8 Scale Score Results by Free/Reduced-Price Lunch Eligibility

- In 2005, students in California eligible for free/reduced-price lunch had an average mathematics scale score of 254. This was lower than that of students in California not eligible for this program (282).
- In 2005, students who were eligible for free/reduced-price school lunch had an average score that was lower than that of students who were not eligible for free/reduced-price school lunch by 28 points. In 1996, the average score for students who were eligible for free/reduced-price school lunch was lower than the score of those not eligible by 30 points.
- Students in California eligible for free/reduced-price lunch had an average scale score (254) in 2005 that was lower than that of students in the nation who were eligible (261).
- In California, students eligible for free/reduced-priced lunch had an average mathematics scale score in 2005 (254) that was higher than that of eligible students in 1996 (246).
- In California, students eligible for free/reduced-priced lunch had an average mathematics scale score in 2005 (254) that was higher than that of eligible students in 2000 (240).
- In California, students eligible for free/reduced-priced lunch had an average mathematics scale score in 2005 (254) that was not significantly different from that of eligible students in 2003 (251).

Grade 8 Achievement-Level Results by Free/Reduced-Price Lunch Eligibility

- In California in 2005, 10 percent of students who were eligible for free/reduced-price lunch and 33 percent of those who were not eligible for this program performed at or above *Proficient*. These percentages were found to be significantly different from one another.
- For students in California in 2005 who were eligible for free/reduced-price lunch, the percentage at or above *Proficient* (10 percent) was smaller than the corresponding percentage for their counterparts around the nation (13 percent).
- In California, the percentage of students eligible for free/reduced-price lunch who performed at or above *Proficient* for 2005 (10 percent) was greater than the corresponding percentage (5 percent) for 1996.
- In California, the percentage of students eligible for free/reduced-price lunch who performed at or above *Proficient* for 2005 (10 percent) was greater than the corresponding percentage (4 percent) for 2000.
- In California, the percentage of students eligible for free/reduced-price lunch who performed at or above *Proficient* for 2005 (10 percent) was not significantly different from the corresponding percentage (9 percent) for 2003.

The Nation's Report Card 2005 State Assessment

Table 5-B

Average mathematics scale scores and percentage of students at or above each achievement level, by eligibility for free/reduced-price school lunch, grade 8 public schools: various years, 1996–2005

Eligibility status		Percentage of students	Average scale score	Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
Eligible							
1996[1]	Nation (public)	30*	252*	61*	39*	8*	1
	California	36*	246*	68*	32*	5*	#
2000[1]	Nation (public)	28*	255*	56*	44*	10*	1
	California	35*	242*	70*	30*	4*	#
2000	Nation (public)	31*	253*	59*	41*	10*	1
	California	35*	240*	72*	28*	4*	#
2003	Nation (public)	36*	258*	53*	47*	11*	1*
	California	41	251	62	38	9	1
2005	Nation (public)	39	261	49	51	13	1
	California	45	254	58	42	10	1
Not eligible							
1996[1]	Nation (public)	56	279*	29*	71*	29*	5*
	California	47	276*	33	67	26*	5*
2000[1]	Nation (public)	55	285*	24*	76*	35*	7
	California	49	273*	36	64	24*	4*
2000	Nation (public)	54*	283*	26*	74*	34*	7
	California	52	269*	40*	60*	23*	4*
2003	Nation (public)	58	287*	22	78	37*	7*
	California	46	281	30	70	33	7
2005	Nation (public)	59	288	21	79	39	8
	California	50	282	29	71	33	8
Information not available							
1996[1]	Nation (public)	14*	‡	‡	‡	‡	‡
	California	17*	261	51	49	15	2
2000[1]	Nation (public)	16*	273	37	63	26	4
	California	16*	‡	‡	‡	‡	‡
2000	Nation (public)	15*	271	38	62	24	4
	California	13	‡	‡	‡	‡	‡
2003	Nation (public)	6*	278	32	68	29	6
	California	13	‡	‡	‡	‡	‡
2005	Nation (public)	3	277	34	66	28	6
	California	5	‡	‡	‡	‡	‡

Estimate rounds to zero.
‡ Reporting standards are not met.
* Value is significantly different from the value for the same jurisdiction in 2005.
[1] Accommodations were not permitted for this assessment.
NOTE: The NAEP grade 8 mathematics scale ranges from 0 to 500. Achievement levels correspond to the following points on the NAEP mathematics scale: below *Basic*, 261 or lower; *Basic*, 262–298; *Proficient*, 299–332; and *Advanced*, 333 and above. All differences were tested for statistical significance at the .05 level using unrounded numbers. Detail may not sum to totals because of rounding. Performance comparisons may be affected by differences in exclusion rates for students with disabilities and English language learners in the NAEP samples and by changes in sample sizes.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1996–2005 Mathematics Assessments.

Type of Location

Schools that participated in the assessment were classified as being located in three mutually exclusive types of community: central city, urban fringe/large town, and rural/small town. These categories indicate the geographic locations of schools. "Central city" is geographical term meaning the largest city of a Metropolitan Statistical Area and is not synonymous with "inner city." The criteria for classifying schools with respect to type of location changed for 2005, therefore comparisons with prior years are not provided.

Tables 6-A and 6-B show average scale scores and achievement-level data for public school students at grades 4 and 8 in California and the nation by type of location.

Grade 4 Scale Score Results by Type of Location

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Grade 4 Achievement-Level Results by Type of Location

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Table 6-A

The Nation's Report Card 2005 State Assessment

Average mathematics scale scores and percentage of students at or above each achievement level, by type of location, grade 4 public schools: 2005

Type of location		Percentage of students	Average scale score	Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
Central city							
2005	Nation (public)	31*	232*	28*	72*	29*	4
	California	45	229	32	68	27	4
Urban fringe							
2005	Nation (public)	44*	241*	17*	83*	40*	6*
	California	49	231	27	73	28	4
Rural							
2005	Nation (public)	25*	238	18	82	35	4
	California	5	238	19	81	35	4

* Value is significantly different from the value for California.

NOTE: The NAEP grade 4 mathematics scale ranges from 0 to 500. Achievement levels correspond to the following points on the NAEP mathematics scale: below *Basic*, 213 or lower; *Basic*, 214–248; *Proficient*, 249–281; and *Advanced*, 282 and above. All differences were tested for statistical significance at the .05 level using unrounded numbers. Detail may not sum to totals because of rounding. Performance comparisons may be affected by differences in exclusion rates for students with disabilities and English language learners in the NAEP samples and by changes in sample sizes.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2005 Mathematics Assessment.

Grade 8 Scale Score Results by Type of Location

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Grade 8 Achievement-Level Results by Type of Location

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Table 6-B

The Nation's Report Card 2005 State Assessment

Average mathematics scale scores and percentage of students at or above each achievement level, by type of location, grade 8 public schools: 2005

Type of location		Percentage of students	Average scale score	Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
Central city							
2005	Nation (public)	30*	270*	41*	59*	23	5
	California	46	267	45	55	21	5
Urban fringe							
2005	Nation (public)	43*	282*	28*	72*	33*	7*
	California	47	269	42	58	22	4
Rural							
2005	Nation (public)	27*	279	29	71	28	4
	California	7	275	34	66	25	5

* Value is significantly different from the value for California.

NOTE: The NAEP grade 8 mathematics scale ranges from 0 to 500. Achievement levels correspond to the following points on the NAEP mathematics scale: below *Basic*, 261 or lower; *Basic*, 262–298; *Proficient*, 299–332; and *Advanced*, 333 and above. All differences were tested for statistical significance at the .05 level using unrounded numbers. Detail may not sum to totals because of rounding. Performance comparisons may be affected by differences in exclusion rates for students with disabilities and English language learners in the NAEP samples and by changes in sample sizes.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2005 Mathematics Assessment.

Parents' Highest Level of Education

Eighth-grade students who participated in the NAEP 2005 assessment were asked to indicate the highest level of education they thought their father and their mother had completed. Five response options–did not finish high school, graduated from high school, some education after high school, graduated from college, and "I don't know"–were offered. The highest level of education reported for either parent was used in the analysis of this question. Fourth-graders' replies to this question were not provided in NAEP reports because their responses in previous NAEP assessments were highly variable, and a large percentage of them chose the "I don't know" option.

Grade 8 Scale Score Results by Parents' Highest Level of Education

- In 2005, students in California who reported that a parent had graduated from college had an average scale score that was higher than the average scores of students with a parent in any of the following education categories: did not finish high school, graduated from high school, and some education after high school.
- The average scale score was higher in 2005 than in 1990 for students in California who reported that a parent had graduated from college, or had some education after high school, or had graduated from high school, or had not finished high school.
- The average scale score was higher in 2005 than in 2003 for students in California who reported that a parent had not finished high school.
- The differences between the average scale scores in 2005 and 2003 for students in California who reported that a parent had graduated from college, or had some education after high school, or had graduated from high school were not significant.

Grade 8 Achievement-Level Results by Parents' Highest Level of Education

- In 2005, the percentage of students performing at or above *Proficient* in California who reported that a parent had graduated from college was higher than the percentage for students whose parents' highest level of education was in any of the following categories: did not finish high school, graduated from high school, and some education after high school.
- In 2005, the percentage of students performing at or above *Proficient* was higher than the percentage in 1990 for students reporting that a parent had graduated from college, or had some education after high school, or had graduated from high school, or had not finished high school.
- In 2005, the percentage of students performing at or above *Proficient* was not found to be significantly different from the percentage in 2003 for students reporting that a parent had graduated from college, or had some education after high school, or had graduated from high school, or had not finished high school.

Table 7

The Nation's Report Card 2005 State Assessment

Average mathematics scale scores and percentage of students at or above each achievement level, by parents' highest level of education, grade 8 public schools: various years, 1990–2005

Highest level of education		Percentage of students	Average scale score	Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
Did not finish high school							
1990[1]	Nation (public)	10*	241*	76*	24*	3*	#
	California	11	241*	76*	24*	3*	#
1992[1]	Nation (public)	8	249*	66*	34*	6*	1
	California	10	242*	74*	26*	3*	#
1996[1]	Nation (public)	8	254*	56	44	8	1
	California	10*	246*	68	32	3*	#
2000[1]	Nation (public)	7	255*	55	45	8	1
	California	11	244*	69	31	7	#
2000	Nation (public)	8	253*	57	43	7*	#
	California	10	242*	73*	27*	3*	#
2003	Nation (public)	7*	256*	56*	44*	9*	1
	California	10	246*	68	32	6	#
2005	Nation (public)	8	259	52	48	11	1
	California	12	252	61	39	8	1
Graduated from high school							
1990[1]	Nation (public)	25*	255*	59*	41*	8*	#
	California	17*	246*	67*	33*	4*	#
1992[1]	Nation (public)	25*	257*	55*	45*	10*	1
	California	17	252*	60	40	7	#
1996[1]	Nation (public)	23*	260*	50*	50*	12*	1
	California	17*	251*	63*	37*	7*	#
2000[1]	Nation (public)	21*	263*	47*	53*	16	1
	California	15	251	61	39	7	1
2000	Nation (public)	21*	260*	49*	51*	15	1
	California	14	249*	62	38	6	1
2003	Nation (public)	18	267	42	58	16	2
	California	13	255	57	43	9	#
2005	Nation (public)	18	267	42	58	17	2
	California	14	258	54	46	12	1

See notes at end of table.

The Nation's Report Card 2005 State Assessment

Table 7

Average mathematics scale scores and percentage of students at or above each achievement level, by parents' highest level of education, grade 8 public schools: various years, 1990–2005—Continued

Highest level of education		Percentage of students	Average scale score	Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
Some education after high school							
1990[1]	Nation (public)	17	267*	43*	57*	15*	3
	California	18	262*	48*	52*	13*	1*
1992[1]	Nation (public)	18	270*	40*	60*	20*	3
	California	18	266*	42*	58*	16	1
1996[1]	Nation (public)	19	279	29	71	26	4
	California	16	271	37	63	19	2
2000[1]	Nation (public)	18	279	28	72	27	3
	California	21*	270	38	62	17	2
2000	Nation (public)	18	277*	30	70	26	3
	California	21*	269*	39	61	17*	1*
2003	Nation (public)	18	280	27	73	28	4
	California	18	275	33	67	25	4
2005	Nation (public)	18	280	27	73	28	4
	California	18	274	34	66	23	3
Graduated from college							
1990[1]	Nation (public)	39*	274*	34*	66*	25*	4*
	California	38	271*	38*	62*	22*	4*
1992[1]	Nation (public)	40*	279*	30*	70*	31*	5*
	California	39	276*	33*	67*	28*	5*
1996[1]	Nation (public)	40*	281*	28*	72*	34*	7
	California	38	278*	32	68	30	6*
2000[1]	Nation (public)	43	286*	24	76	39	9
	California	35	281	31	69	33	6
2000	Nation (public)	41*	285*	25*	75*	38	9
	California	36	279*	32	68	32	6*
2003	Nation (public)	45	287*	23*	77*	39*	8*
	California	40	282	30	70	35	9
2005	Nation (public)	45	289	22	78	41	10
	California	37	284	28	72	37	10

See notes at end of table.

The Nation's Report Card 2005 State Assessment

Table 7

Average mathematics scale scores and percentage of students at or above each achievement level, by parents' highest level of education, grade 8 public schools: various years, 1990–2005—Continued

Highest level of education		Percentage of students	Average scale score	Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
Unknown							
1990[1]	Nation (public)	9*	240*	71*	29*	5*	#
	California	16*	238*	76*	24*	5*	1
1992[1]	Nation (public)	9*	251*	62*	38*	9*	#
	California	16	241*	71*	29*	6	#
1996[1]	Nation (public)	11	253*	59*	41*	10	1
	California	18	244*	70*	30*	5*	#
2000[1]	Nation (public)	11	255*	55	45	11	1
	California	18	239*	72	28	4*	#
2000	Nation (public)	12	253*	59*	41*	9*	1
	California	18	236*	74*	26*	4*	#
2003	Nation (public)	11	258*	53*	47*	12	1
	California	18	250	62	38	9	1
2005	Nation (public)	11	260	51	49	13	1
	California	19	252	60	40	9	1

Estimate rounds to zero.

* Value is significantly different from the value for the same jurisdiction in 2005.

[1] Accommodations were not permitted for this assessment.

NOTE: The NAEP grade 8 mathematics scale ranges from 0 to 500. Achievement levels correspond to the following points on the NAEP mathematics scale: below *Basic*, 261 or lower; *Basic*, 262–298; *Proficient*, 299–332; and *Advanced*, 333 and above. All differences were tested for statistical significance at the .05 level using unrounded numbers. Detail may not sum to totals because of rounding. Performance comparisons may be affected by differences in exclusion rates for students with disabilities and English language learners in the NAEP samples and by changes in sample sizes.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1990–2005 Mathematics Assessments.

Toward a More Inclusive NAEP: Students With Disabilities and English Language Learners

It is important to assess all students selected in the randomized sampling process, including students with disabilities (SD) and students who are classified by their schools as English language learners (ELL). Some students sampled for participation in NAEP can be excluded from the sample according to carefully defined criteria. School personnel, guided by the student's Individualized Education Program (IEP), as well as eligibility for Section 504 services, make decisions regarding inclusion of students with disabilities in the assessment. They also make decisions regarding inclusion of English language learners, based on NAEP's guidelines, by evaluating the student's capability of participating in the assessment given the available accommodations, and taking into consideration the number of years the student has been receiving instruction in English. The results displayed in this report and in other publications of the NAEP 2005 mathematics results are based on representative samples that include SD and ELL students who were assessed either with or without accommodations, based on NAEP's guidelines.

Percentages of students excluded from NAEP may vary considerably across states, and, within a state, across years. Comparisons of results across states and within a state across years should be interpreted with caution if the exclusion rates vary widely. The percentages of assessed students classified as SD or ELL, as well as their NAEP performance in each participating state and jurisdiction, are available in an interactive database at the NAEP website (http://nces.ed.gov/nationsreportcard/).

Prior to 2000, no testing accommodations were made available to the samples of students with disabilities and the English language learners in state NAEP mathematics assessments that served as the basis for reported results. In the 1996 national and 2000 national and state mathematics assessments, NAEP researchers drew a second representative sample of schools. Accommodations were made available for students in this sample who required them, provided the accommodation did not change the nature of what was tested. For example, students could be assessed one-on-one or in small groups, receive extended time, or use a large-print test book. In mathematics, students had the option of having the test questions read aloud in English, or using a bilingual English-Spanish test book. However, in the mathematics assessment, students were not allowed to use calculators for any questions on which calculators were not permitted. NAEP has used these comparable samples to study the effects of allowing accommodations for students categorized as SD or ELL in the assessments. A series of technical research papers covering various NAEP subject areas has been published with the results of these comparisons (see http://nces.ed.gov/nationsreportcard/about/inclusion.asp#research).

Tables 8-A and 8-B display the percentages of students with disabilities and English language learners in California identified, excluded, and assessed under standard and accommodated conditions at grades 4 and 8.

Tables 9-A and 9-B show the percentage of students assessed in California by disability status and their performance on the NAEP assessment in terms of average scale scores and percentages performing below *Basic*, at or above *Basic*, at or above *Proficient*, and at *Advanced* for grades 4 and 8.

Tables 10-A and 10-B present the percentage of students assessed in California by ELL status, their average scale scores, and their performance in terms of the percentage below *Basic*, the percentages at or above *Basic*, at or above *Proficient*, and at *Advanced*.

Table 11 presents the total number of students assessed, the percentage of students sampled who were excluded, and average scale scores for all participating states and other jurisdictions.

Table 8-A

The Nation's Report Card 2005 State Assessment

Percentage of students in mathematics assessments identified as SD and ELL, excluded, and assessed, grade 4 public schools: various years, 1992–2005

Year and testing status	SD and/or ELL		SD		ELL	
	California	Nation	California	Nation	California	Nation
1992[1] Identified	28	10	7	7	22	3
Excluded	12	7	3	5	10	2
Assessed under standard conditions	16	4	4	3	12	1
1996[1] Identified	33	16	8	12	26	4
Excluded	16	6	5	5	12	2
Assessed under standard conditions	17	9	3	7	14	2
2000 Identified	33	19	8	13	27	7
Excluded	6	4	3	3	3	1
Assessed under standard conditions	19	10	4	5	16	5
Assessed with accommodations	8	5	1	4	7	1
2003 Identified	38	22	10	14	33	11
Excluded	3	4	2	3	2	1
Assessed under standard conditions	31	10	6	4	27	7
Assessed with accommodations	4	8	2	7	3	2
2005 Identified	39	23	10	14	33	10
Excluded	4	3	2	3	3	1
Assessed under standard conditions	31	10	4	4	28	7
Assessed with accommodations	5	10	3	8	2	3

[1] Accommodations were not permitted for this assessment.

NOTE: SD = students with disabilities. ELL = English language learners. Detail may not sum to totals because of rounding. Some students were identified as both SD and ELL. Such students would be included in both the SD and ELL portions of the table.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), selected years, 1992–2005 Mathematics Assessments.

The Nation's Report Card 2005 State Assessment

Table 8-B

Percentage of students in mathematics assessments identified as SD and ELL, excluded, and assessed, grade 8 public schools: various years, 1990–2005

Year and testing status		SD and/or ELL		SD		ELL	
		California	Nation	California	Nation	California	Nation
1990[1]	Identified	15	—	7	—	8	—
	Excluded	7	—	3	—	4	—
	Assessed under standard conditions	8	—	4	—	4	—
1992[1]	Identified	20	10	8	8	13	2
	Excluded	8	6	4	5	5	2
	Assessed under standard conditions	12	4	4	3	8	1
1996[1]	Identified	20	11	8	9	13	3
	Excluded	10	5	5	4	6	1
	Assessed under standard conditions	10	7	4	5	7	2
2000	Identified	27	14	10	11	19	4
	Excluded	4	4	3	3	2	1
	Assessed under standard conditions	17	7	5	5	13	3
	Assessed with accommodations	5	3	3	2	4	1
2003	Identified	27	19	11	14	20	6
	Excluded	3	4	1	3	2	1
	Assessed under standard conditions	22	8	7	5	17	4
	Assessed with accommodations	3	7	2	6	1	1
2005	Identified	28	19	9	13	21	6
	Excluded	2	4	2	3	1	1
	Assessed under standard conditions	21	7	4	3	18	4
	Assessed with accommodations	4	8	3	7	2	1

[1] Accommodations were not permitted for this assessment.
— Not available.
NOTE: SD = students with disabilities. ELL = English language learners. Detail may not sum to totals because of rounding. Some students were identified as both SD and ELL. Such students would be included in both the SD and ELL portions of the table.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), selected years, 1990–2005 Mathematics Assessments.

Table 9-A

The Nation's Report Card 2005 State Assessment

Average mathematics scale scores and percentage of students at or above each achievement level, by students' disability status, grade 4 public schools: various years, 2000–2005

Student disability status		Percentage of students	Average scale score	Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
Yes							
2000[1]	Nation (public)	‡	‡	‡	‡	‡	‡
	California	‡	‡	‡	‡	‡	‡
2000	Nation (public)	10*	198*	71*	29*	6*	1
	California	5*	‡	‡	‡	‡	‡
2003	Nation (public)	11*	214*	50*	50*	12*	1*
	California	8	208	59	41	12	1
2005	Nation (public)	12	218	44	56	16	2
	California	8	209	56	44	12	1
No							
2000[1]	Nation (public)	‡	‡	‡	‡	‡	‡
	California	‡	‡	‡	‡	‡	‡
2000	Nation (public)	90*	227*	33*	67*	24*	3*
	California	95*	214*	49*	51*	13*	1*
2003	Nation (public)	89*	236*	21*	79*	34*	4*
	California	92	229*	30*	70*	26	3
2005	Nation (public)	88	240	17	83	38	5
	California	92	232	27	73	29	4

‡ Reporting standards are not met.
* Value is significantly different from the value for the same jurisdiction in 2005.
[1] Accommodations were not permitted for this assessment.
NOTE: The NAEP grade 4 mathematics scale ranges from 0 to 500. Achievement levels correspond to the following points on the NAEP mathematics scale: below *Basic*, 213 or lower; *Basic*, 214–248; *Proficient*, 249–281; and *Advanced*, 282 and above. All differences were tested for statistical significance at the .05 level using unrounded numbers. Detail may not sum to totals because of rounding. Performance comparisons may be affected by differences in exclusion rates for students with disabilities and English language learners in the NAEP samples and by changes in sample sizes.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 2000–2005 Mathematics Assessments.

Table 9-B

The Nation's Report Card 2005 State Assessment

Average mathematics scale scores and percentage of students at or above each achievement level, by students' disability status, grade 8 public schools: various years, 2000–2005

Student disability status		Percentage of students	Average scale score	Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
Yes							
2000[1]	Nation (public)	‡	‡	‡	‡	‡	‡
	California	‡	‡	‡	‡	‡	‡
2000	Nation (public)	8*	229*	80*	20*	4*	#
	California	8	213*	86	14	2	#
2003	Nation (public)	11*	242*	71*	29*	6	1
	California	10*	232	80	20	5	1
2005	Nation (public)	11	244	69	31	7	1
	California	8	228	82	18	5	1
No							
2000[1]	Nation (public)	‡	‡	‡	‡	‡	‡
	California	‡	‡	‡	‡	‡	‡
2000	Nation (public)	92*	275*	35*	65*	26*	5*
	California	92	264*	47*	53*	18*	3*
2003	Nation (public)	89*	280*	29	71	30*	5*
	California	90*	271	40	60	24	5
2005	Nation (public)	89	281	28	72	31	6
	California	92	272	40	60	23	5

Estimate rounds to zero.
‡ Reporting standards are not met.
* Value is significantly different from the value for the same jurisdiction in 2005.
[1] Accommodations were not permitted for this assessment.
NOTE: The NAEP grade 8 mathematics scale ranges from 0 to 500. Achievement levels correspond to the following points on the NAEP mathematics scale: below *Basic*, 261 or lower; *Basic*, 262–298; *Proficient*, 299–332; and *Advanced*, 333 and above. All differences were tested for statistical significance at the .05 level using unrounded numbers. Detail may not sum to totals because of rounding. Performance comparisons may be affected by differences in exclusion rates for students with disabilities and English language learners in the NAEP samples and by changes in sample sizes.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 2000–2005 Mathematics Assessments.

The Nation's Report Card 2005 State Assessment

Table 10-A

Average mathematics scale scores and percentage of students at or above each achievement level, by students' classification as English language learners (ELL), grade 4 public schools: various years, 2000–2005

ELL status		Percentage of students	Average scale score	Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
Yes							
2000[1]	Nation (public)	‡	‡	‡	‡	‡	‡
	California	‡	‡	‡	‡	‡	‡
2000	Nation (public)	6*	199*	70*	30*	4*	#
	California	25*	195*	77*	23*	2*	#
2003	Nation (public)	9	214*	51*	49*	9*	#*
	California	32	212	53	47	8	#
2005	Nation (public)	10	216	46	54	11	1
	California	31	214	50	50	10	1
No							
2000[1]	Nation (public)	‡	‡	‡	‡	‡	‡
	California	‡	‡	‡	‡	‡	‡
2000	Nation (public)	94*	226*	34*	66*	24*	3*
	California	75*	218*	41*	59*	16*	1*
2003	Nation (public)	91	236*	21*	79*	34*	4*
	California	68	235*	23*	77*	32	4
2005	Nation (public)	90	239	18	82	38	5
	California	69	238	20	80	36	5

Estimate rounds to zero.
‡ Reporting standards are not met.
* Value is significantly different from the value for the same jurisdiction in 2005.
[1] Accommodations were not permitted for this assessment.
NOTE: The NAEP grade 4 mathematics scale ranges from 0 to 500. Achievement levels correspond to the following points on the NAEP mathematics scale: below *Basic*, 213 or lower; *Basic*, 214–248; *Proficient*, 249–281; and *Advanced*, 282 and above. All differences were tested for statistical significance at the .05 level using unrounded numbers. Detail may not sum to totals because of rounding. Performance comparisons may be affected by differences in exclusion rates for students with disabilities and English language learners in the NAEP samples and by changes in sample sizes.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 2000–2005 Mathematics Assessments.

The Nation's Report Card 2005 State Assessment

Table 10-B

Average mathematics scale scores and percentage of students at or above each achievement level, by students' classification as English language learners (ELL), grade 8 public schools: various years, 2000–2005

ELL status		Percentage of students	Average scale score	Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
Yes							
2000[1]	Nation (public)	‡	‡	‡	‡	‡	‡
	California	‡	‡	‡	‡	‡	‡
2000	Nation (public)	3*	234*	80*	20*	2*	#
	California	17	230*	81	19	4	1
2003	Nation (public)	5	241*	74	26	5	1
	California	19	239	76	24	4	#
2005	Nation (public)	6	244	71	29	6	1
	California	20	241	74	26	5	1
No							
2000[1]	Nation (public)	‡	‡	‡	‡	‡	‡
	California	‡	‡	‡	‡	‡	‡
2000	Nation (public)	97*	273*	37*	63*	26*	5*
	California	83	266*	44*	56*	20*	3*
2003	Nation (public)	95	278*	31*	69*	29*	5*
	California	81	274	37	63	26	5
2005	Nation (public)	94	280	30	70	30	6
	California	80	276	35	65	26	5

Estimate rounds to zero.
‡ Reporting standards are not met.
* Value is significantly different from the value for the same jurisdiction in 2005.
[1] Accommodations were not permitted for this assessment.
NOTE: The NAEP grade 8 mathematics scale ranges from 0 to 500. Achievement levels correspond to the following points on the NAEP mathematics scale: below *Basic*, 261 or lower; *Basic*, 262–298; *Proficient*, 299–332; and *Advanced*, 333 and above. All differences were tested for statistical significance at the .05 level using unrounded numbers. Detail may not sum to totals because of rounding. Performance comparisons may be affected by differences in exclusion rates for students with disabilities and English language learners in the NAEP samples and by changes in sample sizes.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 2000–2005 Mathematics Assessments.

Table 11

The Nation's Report Card 2005 State Assessment

Total number of students assessed, percentage of students sampled who were excluded, and average mathematics scale scores, grades 4 and 8 public schools: By state, 2005

State/jurisdiction	Grade 4			Grade 8		
	Number assessed	Percentage excluded	Average scale score	Number assessed	Percentage excluded	Average scale score
Alabama	2,600	1	225	2,300	1	262
Alaska	2,800	2	236	2,600	2	279
Arizona	2,900	4	230	2,800	5	274
Arkansas	2,800	3	236	2,700	3	272
California	10,700	4	230	9,800	2	269
Colorado	2,800	3	239	2,400	3	281
Connecticut	2,800	2	242	2,700	3	281
Delaware	2,500	8	240	2,500	11	281
Florida	4,300	3	239	3,900	3	274
Georgia	4,300	2	234	3,900	2	272
Hawaii	2,700	3	230	2,700	3	266
Idaho	2,900	1	242	2,900	2	281
Illinois	4,100	3	233	4,000	3	278
Indiana	2,700	2	240	2,700	4	282
Iowa	3,200	2	240	2,700	3	284
Kansas	3,300	3	246	2,700	4	284
Kentucky	2,800	3	231	2,800	3	274
Louisiana	2,700	4	230	2,300	4	268
Maine	2,600	4	241	2,500	5	281
Maryland	2,700	4	238	2,600	4	278
Massachusetts	3,900	4	247	3,500	6	292
Michigan	2,500	4	238	2,400	4	277
Minnesota	2,600	2	246	2,600	2	290
Mississippi	2,800	2	227	2,700	3	262
Missouri	2,800	2	235	2,700	4	276
Montana	2,700	2	241	2,700	2	286
Nebraska	3,100	2	238	2,800	1	284
Nevada	2,900	3	230	2,700	2	270
New Hampshire	2,600	2	246	2,400	2	285
New Jersey	2,800	3	244	2,600	4	284
New Mexico	2,800	3	224	2,700	3	263
New York	5,000	4	238	4,300	4	280
North Carolina	4,100	2	241	3,900	3	282
North Dakota	2,200	3	243	2,400	4	287
Ohio	3,500	3	242	3,300	6	283
Oklahoma	2,700	4	234	2,500	4	271
Oregon	2,700	4	238	2,500	3	282
Pennsylvania	3,500	3	241	2,800	3	281
Rhode Island	2,700	3	233	2,800	3	272
South Carolina	2,800	4	238	2,600	6	281
South Dakota	2,800	2	242	2,800	2	287
Tennessee	2,900	3	232	2,400	5	271
Texas	8,400	6	242	7,900	6	281
Utah	2,900	2	239	2,800	2	279
Vermont	2,100	3	244	2,300	4	287
Virginia	2,700	5	240	2,600	5	284
Washington	2,800	3	242	2,700	2	285
West Virginia	2,700	2	231	2,600	3	269
Wisconsin	2,600	2	241	2,500	4	285
Wyoming	1,800	2	243	2,000	2	282
Other jurisdictions						
District of Columbia	2,200	6	211	1,900	6	245
DoDEA[1]	2,400	2	239	1,700	2	284

[1] Department of Defense Education Activity Schools (domestic and overseas).

NOTE: The NAEP mathematics scale ranges from 0 to 500. Sample sizes are rounded to the nearest hundred, or indicated as <50 when the value is

between 1 and 49.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2005 Mathematics Assessment.

Appendix A

Overview of Procedures Used for the NAEP 2005 Mathematics Assessment

This appendix provides an overview of the NAEP 2005 mathematics assessment's primary components—framework, development, administration, scoring, and analysis. The information provided about the state and national assessments covers grades 4, 8, and 12, as well as information on NAEP's Trial Urban District Assessment (TUDA).

The NAEP 2005 Mathematics Framework

The National Assessment Governing Board (NAGB), created by Congress in 1988, is responsible for formulating policy for NAEP. NAGB is specifically charged with developing assessment objectives and test specifications. The mathematics framework used for the 1990 assessment was developed under contract with the Council of Chief State School Officers (CCSSO). The NAEP mathematics assessment that was administered in 2005 is comparable to the previous assessments based on the 1990 framework—1990, 1992, 1996, 2000, and 2003. The mathematics framework for 2005 can be viewed and downloaded from the NAGB website (http://www.nagb.org/pubs/m_framework_05/761607-Math%20Framework.pdf).

The CCSSO project considered objectives and frameworks for mathematics instruction at the state, district, and school levels. The project also examined curricular frameworks on which previous NAEP assessments were based, consulted with leaders in mathematics education, and considered a draft version of the National Council of Teachers of Mathematics (NCTM) *Curriculum and Evaluation Standards for School Mathematics*.[1] This project resulted in a "content by mathematical ability" matrix used to guide the design of both the NAEP 1990 and 1992 mathematics assessments. The design was reported in *Mathematics Objectives: 1990 Assessment*.[2]

The 1996 assessment was based on the first update of the NAEP 1990 mathematics framework after the release of the NCTM *Curriculum and Evaluation Standards for School Mathematics* in 1989.[3] This update was conducted by the College Board and reflected refinements in the earlier framework specifications, while ensuring comparability of results across the 1990, 1992, and 1996 assessments. The result was a "content by mathematical ability by mathematical power" matrix that was used to guide the NAEP 1996, 2000, and 2003 mathematics assessments. Because the framework for 2000 and 2003 was the same as for the 1996 update, the assessment results from 1990 to 2003 can be compared.

In 2000, NAGB awarded a contract to CCSSO to update the mathematics assessment framework for 2005, based on the framework used for the 1996 and 2000 assessments. CCSSO established a steering committee, representative of national policy organizations, mathematics associations, research mathematicians, business and industry, and educators, to develop policy recommendations for the mathematics assessment and to guide the direction and scope of the project. Care was taken to ensure that the diversity of opinion regarding mathematics issues was represented and reflected. Consensus was the goal of the project. The resulting revisions to the framework for the 2005 mathematics assessments are intended to

- reflect recent curricular emphases and objectives;
- include what various policy makers, scholars, practitioners, and interested citizens believe should be in the assessment;
- maintain the short-term trend lines in grades 4 and 8 that began with the 1990 mathematics assessment, to permit the reporting of changes in student achievement over time; and
- include clearer and more specific objectives for each grade level.

The 2005 framework classifies items in two dimensions—content area and mathematical complexity. Although the names of the content areas, as well as some of the topics in those areas, may have changed from one framework to the next, there is a consistent focus across frameworks on collecting information on student performance in five key areas: number properties and operations, measurement, geometry, data analysis and probability, and algebra. The dimensions of mathematical ability and power in the 1996–2003 frameworks have been replaced in the 2005 framework by the dimension of mathematical complexity. The purpose remains to make sure that NAEP assesses a variety of ways of knowing and doing mathematics. Mathematical complexity addresses the demands that an item makes on the student, assuming the student is familiar with the mathematics of the task. The 2005 assessment contains "trend items"—items that were carried forward. These were reclassified in terms of both content area and mathematical complexity.

Sample released questions for each content area at all three grade levels can be viewed at the NAEP website (http://nces.ed.gov/nationsreportcard/itmrls/). Questions released from the 2005 assessment are classified by content area and level of complexity. Those released from assessments administered in 2003 and earlier are classified by content area and mathematical ability required.

The five content areas that constitute the NAEP mathematics assessment are described below. These content areas apply to each of the three grades assessed by NAEP.

Descriptions of the Five NAEP Mathematics Content Areas

Number Properties and Operations

This content area focuses on students' ability to represent numbers, order numbers, compute with numbers, make estimates appropriate to given situations, use ratios and proportional reasoning, and apply number properties and operations to solve real-world problems. This content area also addresses number sense—comfort in dealing with numbers—and addresses students' understanding of what numbers tell us, equivalent ways to represent numbers, and the use of numbers to represent attributes of real-world objects and quantities. At grade 4 the focus is on whole numbers and simple fractions; at grade 8 the focus extends to include rational numbers; at grade 12 the focus extends to include real numbers.

Measurement

This content area focuses on students' understanding of measurement attributes such as capacity, weight/mass, time, and temperature, as well as on the geometric attributes of length, area, and volume. Students may be asked to select appropriate units and tools for measuring, to measure length with a ruler at all three grades, to measure angles with a protractor at grades 8 and 12, and to solve application problems related to units of measurement. At grade 4 the focus is on time, temperature, capacity, length, weight, perimeter, and area. At grades 8 and 12, students are also expected to understand and demonstrate knowledge of volume and surface area. Knowledge of both customary and metric units is expected. Students may be asked to solve problems that require conversions between (with conversion factors given) or within systems of measurement.

Geometry

By grade 4, students are expected to be familiar with simple plane figures such as lines, circles, triangles, and rectangles, as well as with solid figures such as cubes, spheres, and cylinders. They are also expected to be able to recognize examples of parallel and perpendicular lines. As students move to middle school and beyond, understanding of two- and three-dimensional figures should deepen, with increased understanding of properties of these figures, especially parallelism, perpendicularity, angle relations in polygons, congruence, similarity, and the Pythagorean theorem. Students at all grades are expected to show knowledge of symmetry and transformations of shapes, and to identify images resulting from flips, rotations, or turns. At grade 4, justification and reasoning are informal while both formal and informal justification and reasoning are expected at grades 8 and 12.

Data Analysis and Probability

This content area focuses on students' skills in four areas: data representation, characteristics of data sets, experiments and samples, and probability. Data representation focuses on reading and interpreting data, solving problems based on data and, at the upper grades, evaluating the effectiveness of the presentation of data. At grade 4 students are expected to use standard statistical measures such as the median, range, or mode, and to compare sets of related data; at grades 8 and 12 they are also expected to show understanding of other statistical concepts, such as the impact of outliers and the line of best fit in a scatterplot. By grade 8, students are expected to have some knowledge of experiments and samples, such as being able to recognize possible sources of bias in sampling and to identify random versus nonrandom sampling, and by grade 12 they are also expected to make inferences from sample results. Students at all grades are expected to use statistics and statistical concepts to analyze and communicate interpretations of data. Students may be asked to solve problems that address appropriate methods of gathering data, the visual exploration of data, ways to represent data, or the development and evaluation of arguments based on the analysis of data. Probability is assessed informally at grade 4 and more formally at grades 8 and 12.

Algebra

This content area focuses on students' understanding of patterns, relations, and functions; algebraic representation; variables, expressions and operations; and equations and inequalities. At grade 4 students are expected to show knowledge of simple patterns and expressions; at grade 8 this knowledge extends to include linear equations; and at grade 12 it extends further to include quadratic and exponential equations and functions. Representational skills, such as students' ability to translate between different forms of representation (e.g., from a written description to an equation), the ability to graph and interpret points located on a coordinate system, and the ability to use algebraic properties to draw a conclusion are assessed in this area. Students' may be asked to express relationships algebraically as number sentences, equations, or inequalities; manipulate algebraic expressions; or to solve and interpret algebraic equations and inequalities that are grade-level appropriate. The use of algebraic concepts and procedures to solve contextual problems is an important component of the algebra content area.

The assessment framework specifies not only the particular areas that should be assessed, but also the percentage of the assessment questions that should be devoted to each of the content areas. The target percentage distributions for content areas as specified in the frameworks from 1990 through 2005 are presented in table A-1. The target percentages at grade 8 differ from those at grade 4 because of a shift in curricular emphasis. For example, in grade 4 there is more emphasis on number properties and operations than on algebra. In grade 8, the percentage of algebra items increases, and the percentage of number properties and operations items decreases. The actual content of the assessment is close to the targeted distribution.

Table A-1. Target percentage distribution of questions, by content area, grades 4, 8, and 12: Various years, 1990–2005

Content area	1990 and 1992	1996, 2000, 2003	2005	Content area
Grade 4				
Number sense, properties, and operations	45	40	40	Number properties and operations
Measurement	20	20	20	Measurement
Geometry and spatial sense	15	15	15	Geometry
Data analysis, statistics, and probability	10	10	10	Data analysis and probability
Algebra and functions	10	15	15	Algebra
Grade 8				
Number sense, properties, and operations	30	25	20	Number properties and operations
Measurement	15	15	15	Measurement
Geometry and spatial sense	20	20	20	Geometry
Data analysis, statistics, and probability	15	15	15	Data analysis and probability
Algebra and functions	20	25	30	Algebra
Grade 12				
Number sense, properties, and operations	†	†	10	Number properties and operations
Measurement	†	†		
			30	Measurement and geometry[1]
Geometry and spatial sense	†	†		
Data analysis, statistics, and probability	†	†	25	Data analysis and probability
Algebra and functions	†	†	35	Algebra

† Not applicable. Item distributions from previous years are not comparable because a new framework was used in 2005.

[1] At grade 12, the five content areas are collapsed into four, with geometry and measurement combined into one. This reflects the fact that most of the measurement topics suitable for grade 12 students are geometrical.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1990–2005 Mathematics Assessments.

The Assessment Design

Each student who participated in the NAEP 2005 mathematics assessment received a booklet containing four sections: two sets of cognitive questions, a set of general background questions, and a set of subject-specific background questions. Assessments for each grade consisted of 10 sets of cognitive questions, or "blocks." Some items from the 1990, 1992, 1996, 2000, and 2003 assessments were carried forward to 2005 to allow for the measurement of trends across time. Three new blocks were developed for the 2005 assessment for each of grades 4 and 8, as specified by the updated framework. Each student was given 50 minutes to answer the cognitive questions, followed by 10 minutes for a background questionnaire.

Three types of questions are used in the assessment: multiple-choice, short constructed-response, and extended constructed-response. Table A-2 shows the distribution of questions administered from 1990 to 2005 by type for each grade level. The total number of questions administered has varied somewhat across the assessment years due to the inclusion of special study blocks in certain years. The number of questions used in the main scaling, however, has remained relatively constant.

Table A-2. Percentage distribution of questions administered, by question type, grades 4, 8, and 12: Various years, 1990–2005

Question type	1990	1992	1996	2000	2003	2005
Grade 4						
Multiple-choice	71	61	51	60	63	64
Short constructed-response	29	36	41	34	33	32
Extended constructed-response	0	3	8	6	4	4
Grade 8						
Multiple-choice	78	62	56	63	65	69
Short constructed-response	22	34	38	32	29	28
Extended constructed-response	0	3	7	6	5	4
Grade 12						
Multiple-choice	†	†	†	†	—	67
Short constructed-response	†	†	†	†	—	28
Extended constructed-response	†	†	†	†	—	5

— Not available. Data were not collected at grade 12 in 2003.

† Not applicable. Item distributions from previous years are not comparable because a new framework was used in 2005.

NOTE: Short constructed-response questions included in the 1990 and 1992 assessments were scored dichotomously (i.e., credit or no credit). New short constructed-response questions included in the 1996 and 2000 assessments were scored to allow for partial credit. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1990–2005 Mathematics Assessments.

The assessment design permits broad coverage of the five mathematics content areas and levels of mathematical complexity at each grade, while minimizing the time burden for any one student. This was accomplished through the use of matrix sampling of items in which representative samples of students took various portions of the entire pool of assessment questions. Individual students are required to take only a small portion of the assessment, but the aggregate results across the entire assessment allow broad reporting of mathematics abilities for the targeted population.

In addition to matrix sampling of test items, the assessment design used a procedure for distributing blocks across booklets that controlled for position and context effects. Students received different blocks of questions in their booklets according to a procedure that assigned blocks of questions, balancing the positioning of blocks across booklets and balancing the pairing of blocks within booklets. Every block of questions was paired with every other block. The procedure also cycles the booklets for administration so that, typically, only a few students in any assessment session receive the same booklet.

Three other instruments supplemented the student assessment booklets and provided data relating to the assessment: a teacher questionnaire, a school questionnaire, and questionnaires about students with disabilities (SD) and/or English language learners (ELL). The teacher questionnaire was administered to the mathematics teachers of the fourth- and eighth-grade students participating in the assessment. The questionnaire focused on the teacher's general background and experience, the teacher's background related to mathematics, and classroom information about mathematics instruction. The school questionnaire was given to the principal or other administrator in each participating school. The questions asked about school policies, programs, facilities, and the demographic composition and background of the students and teachers at the school.

The SD and the ELL questionnaires were completed by a school staff member knowledgeable about those students selected to participate in the assessment who were identified as having an Individualized Education Program (IEP) or equivalent plan (for reasons other than being gifted or talented) or as being an English language learner. An SD or ELL questionnaire was completed for each identified student in the NAEP sample. Each SD or ELL questionnaire asked about the student (for example, type of disability or language spoken other than English) and the special instructional programs (i.e., proportion of time spent in mainstream/general education classes, or specially designed instruction) in which he or she participated.

NAEP Samples

National Sample

The national results presented in this report are based on nationally representative probability samples of fourth- and eighth-grade students. The 2005 NAEP sample design integrated the state assessment sample into the national assessment sample. This integrated sample design has been used in NAEP assessments since 2002. Prior to 2002, separate samples were drawn for the NAEP national and state assessments. For 2005, the sampling frame for public schools was the Common Core of Data (CCD) file corresponding to the 2002–03 school year. The CCD file provided the frame for all regular public, state-operated public, Bureau of Indian Affairs, and Department of Defense domestic schools that were open during the 2002–03 school year. The sampling frame for private schools was developed from the 2001–02 Private School Survey (PSS), which was carried out by the U.S. Census Bureau for the National Center for Education Statistics (NCES). The PSS is a biennial mail survey of all private schools in the 50 states and the District of Columbia. The combined sample was chosen using a stratified two-stage design that involved sampling students from selected schools (public and nonpublic).

Each selected school that participated in the assessment and each student assessed represents a portion of the population of interest. Sampling weights are needed to make valid inferences from the student samples to the respective populations from which they were drawn. Sampling weights account for disproportionate representation of students from different states and for students who attend nonpublic schools. Sampling weights also account for lower sampling rates for very small schools and are used to adjust for school and student nonresponse.

For the 2005 national assessment, as for the 2003 national assessment, accommodations for students with disabilities (SD) and English language learners (ELL) were permitted for the entire sample of students. This differs from the 1996 and 2000 national assessments, in which data were collected from samples of students where assessment accommodations were not permitted and from samples of students where accommodations were permitted. In 2005, accommodations were offered when a student had an Individualized Education Program (IEP) indicating the need for accommodation because of a disability, was protected under Section 504 of the Rehabilitation Act of 1973 because of disability, or was identified as being an English language learner, and/or was normally offered accommodations in other assessment situations.[4] All other students were asked to participate in the assessment under standard conditions. Prior to 1996, testing accommodations (e.g., extended time, small group testing) were not permitted for students with disabilities and English language learners selected to participate in the NAEP mathematics assessments.

The sample sizes and target populations for the 2005 mathematics assessment are listed for the nation and states in table A-3. In 2005, Department of Defense Education Activity (DoDEA) schools are reported as a single jurisdiction; in past years, domestic (Department of Defense Domestic Dependent Elementary and Secondary Schools or DDESS) and overseas (Department of Defense Dependents Schools or DoDDS) schools were considered separate jurisdictions.

In the 2005 assessment, as in the 2002 and 2003 NAEP assessments, a number of large urban school districts participated on a voluntary basis in a Trial Urban District Assessment (TUDA) and larger than normal NAEP samples were drawn in these districts to permit reliable reporting of student group performance. Reports from these Trial Urban District Assessments (TUDAs) for 2002 and 2003 are available on the NAEP website (http://nces.ed.gov/nationsreportcard/); a report for 2005 is forthcoming. The sample sizes and target populations for the districts participating in TUDA are given in table A-4.

Table A-3. National and state student sample sizes and target populations, grades 4 and 8: 2005

State/jurisdiction	Grade 4		Grade 8	
	Sample size	Target population	Sample size	Target population
Nation	**178,000**	**4,174,000**	**168,100**	**4,051,000**
Public	168,900	3,745,000	159,200	3,662,000
Nonpublic	9,100	429,000	8,900	389,000
Alabama	2,600	60,000	2,300	58,000
Alaska	2,800	11,000	2,600	11,000
Arizona	3,000	75,000	2,900	72,000
Arkansas	2,900	37,000	2,800	36,000
California	11,200	498,000	10,100	456,000
Colorado	2,800	57,000	2,500	57,000
Connecticut	2,800	45,000	2,800	43,000
Delaware	2,700	10,000	2,800	9,000
Florida	4,500	192,000	4,100	193,000
Georgia	4,400	117,000	3,900	113,000
Hawaii	2,800	15,000	2,700	14,000
Idaho	2,900	19,000	2,900	20,000
Illinois	4,300	160,000	4,100	157,000
Indiana	2,800	82,000	2,900	79,000
Iowa	3,200	36,000	2,800	37,000
Kansas	3,400	35,000	2,800	36,000
Kentucky	2,900	49,000	2,900	49,000
Louisiana	2,800	63,000	2,400	65,000
Maine	2,700	16,000	2,600	17,000
Maryland	2,800	67,000	2,700	65,000
Massachusetts	4,100	77,000	3,700	75,000
Michigan	2,700	134,000	2,500	132,000
Minnesota	2,700	64,000	2,600	67,000
Mississippi	2,800	41,000	2,800	38,000
Missouri	2,900	70,000	2,800	70,000
Montana	2,800	12,000	2,800	13,000
Nebraska	3,200	24,000	2,900	24,000
Nevada	3,000	29,000	2,800	27,000
New Hampshire	2,700	17,000	2,500	17,000
New Jersey	2,900	103,000	2,700	97,000
New Mexico	2,900	26,000	2,800	26,000
New York	5,200	219,000	4,500	208,000
North Carolina	4,200	106,000	4,100	102,000
North Dakota	2,300	8,000	2,500	9,000
Ohio	3,700	145,000	3,600	153,000
Oklahoma	2,900	48,000	2,700	47,000
Oregon	2,800	42,000	2,600	42,000
Pennsylvania	3,600	140,000	2,900	144,000
Rhode Island	2,800	13,000	2,800	12,000
South Carolina	3,000	53,000	2,800	56,000
South Dakota	2,800	10,000	2,800	10,000
Tennessee	3,000	73,000	2,500	68,000
Texas	9,100	322,000	8,500	313,000
Utah	3,000	36,000	2,900	36,000
Vermont	2,100	8,000	2,400	8,000
Virginia	2,900	92,000	2,800	90,000
Washington	2,900	78,000	2,800	81,000
West Virginia	2,800	23,000	2,700	24,000
Wisconsin	2,700	64,000	2,600	71,000
Wyoming	1,800	7,000	2,100	7,000
Other jurisdictions				
District of Columbia	2,400	6,000	2,100	3,000
DoDEA[1]	2,500	10,000	1,800	7,000

[1] Department of Defense Education Activity (overseas and domestic schools). Before 2005, DoDEA overseas and domestic schools were separate jurisdictions in NAEP.

NOTE: The sample size is rounded to the nearest hundred. The target population is rounded to the nearest thousand. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2005 Mathematics Assessment.

Table A-4. Trial Urban District Assessment student sample sizes and target populations, grades 4 and 8: 2005

District	Grade 4		Grade 8	
	Sample size	Target population	Sample size	Target population
Atlanta	1,200	6,000	1,100	4,000
Austin	1,500	7,000	1,300	6,000
Boston	1,300	5,000	1,200	5,000
Charlotte	1,500	9,000	1,500	8,000
Chicago	2,200	36,000	2,000	35,000
Cleveland	1,100	7,000	1,000	5,000
District of Columbia	2,400	6,000	2,100	3,000
Houston	2,200	18,000	1,900	14,000
Los Angeles	2,200	63,000	1,900	50,000
New York City	2,100	81,000	1,900	70,000
San Diego	1,500	12,000	1,400	10,000

NOTE: The sample size is rounded to the nearest hundred. The target population is rounded to the nearest thousand.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2005 Trial Urban District Mathematics Assessment.

Table A-5 provides a summary of the 2005 national school and student participation rates for the mathematics assessment sample. Participation rates are presented for public and nonpublic schools, both individually and combined. Four different rates are presented. The first rate is a student-centered, weighted percentage of schools participating in the assessment, before substitution of demographically similar schools.[5] This rate is based only on the schools that were initially selected for the assessment. The numerator of this rate is the estimated number of students represented by the initially selected schools that participated in the assessment. The denominator is the estimated number of students represented by the initially selected schools that had eligible students enrolled.

The second school participation rate is a student-centered, weighted participation rate after substitution. The numerator of this rate is the estimated number of students represented by the participating schools, whether originally selected or selected as a substitute for a school that chose not to participate. The denominator is the estimated number of students represented by the initially selected schools that had eligible students enrolled (this is the same as that for the weighted participation rate for the sample of schools before substitution). Because of the common denominators, the weighted participation rate after substitution is at least as great as the weighted participation rate before substitution.

The third school participation rate is a school-centered, weighted percentage of schools participating in the assessment before substitution of demographically similar schools. This rate is based only on the schools that were initially selected for the assessment. The numerator of this rate is the estimated number of schools represented by the initially selected schools that participated in the assessment. The denominator is the estimated number of schools represented by the initially selected schools that had eligible students enrolled.

The fourth school participation rate is a school-centered, weighted participation rate after substitution. The numerator is the estimated number of schools represented by the participating schools, whether originally selected or selected as a substitute for a school that did not participate. The denominator is the estimated number of schools, represented by the initially selected schools that had eligible students enrolled.

The student-centered and school-centered school participation rates differ if school participation is associated with the size of the school. If the student-centered rate is higher than the school-centered rate, this indicates that larger schools participated at a higher rate than smaller schools. If the student-centered rate is lower, smaller schools participated at a higher rate than larger schools.

Also presented in table A-5 are weighted student participation rates. Some students sampled for NAEP are not assessed because they cannot meaningfully participate (for example a student with severe impairment of cognitive functioning). The numerator of this rate is the estimated number of students who are represented by the students assessed (in either an initial session or a makeup session). The denominator of this rate is the estimated number of students represented by the eligible sampled students in participating schools.

Table A-5. National school and student participation rates, by type of school, grades 4, 8, and 12: 2005

Type of school	School participation					Student participation	
	Student-weighted		School-weighted				
	Percent before substitution	Percent after substitution	Percent before substitution	Percent after substitution	Number of schools participating after substitution	Student-weighted percent	Number of students assessed
Grade 4							
Nation	**96**	**98**	**90**	**94**	**9,500**	**94**	**172,000**
Public	100	100	100	100	8,700	94	163,000
Private	68	83	64	78	700	95	6,200
Grade 8							
Nation	**97**	**98**	**86**	**90**	**7,200**	**91**	**161,600**
Public	99	99	99	99	6,500	91	152,800
Private	67	81	65	76	700	94	6,800
Grade 12							
Nation	**82**	**87**	**76**	**83**	**900**	**68**	**9,300**
Public	85	90	87	92	700	67	7,400
Private	47	59	48	58	200	84	1,900

NOTE: The national totals for schools include Department of Defense Education Activity (overseas and domestic schools) and Bureau of Indian Affairs schools, which are not included in either the public or private totals. The national totals for students include students in these schools. Columns of percentages have different denominators; see accompanying text for definitions.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2005 Mathematics Assessment.

State Samples

The results provided in this report of the 2005 state assessment in mathematics are based on state-level samples of fourth- and eighth-grade public school students. The samples were selected using a two-stage sample design that first selected schools within each state or other jurisdiction and then selected students within schools. The samples were weighted to allow valid inferences about the populations of interest. Participation rates for the states and other jurisdictions were calculated the same way that rates were computed for the nation. Tables A-6 and A-7 display weighted school and student participation rates, for the state samples at grades 4 and 8, respectively.

Table A-6. School and student participation rates, grade 4 public schools: By state, 2005

State/jurisdiction	School participation					Student participation	
	Student-weighted		School-weighted				
	Percent before substitution	Percent after substitution	Percent before substitution	Percent after substitution	Number of schools participating after substitution	Student-weighted percent	Number of students assessed
Nation (public)	**100**	**100**	**100**	**100**	**8,700**	**94**	**163,000**
Alabama	100	100	100	100	100	95	2,600
Alaska	99	99	97	97	200	94	2,800
Arizona	100	100	100	100	100	93	2,900
Arkansas	100	100	100	100	200	94	2,800
California	100	100	99	99	400	94	10,700
Colorado	98	98	99	99	100	95	2,800
Connecticut	100	100	100	100	100	94	2,800
Delaware	100	100	100	100	100	92	2,500
Florida	100	100	100	100	200	93	4,300
Georgia	100	100	100	100	200	94	4,300
Hawaii	100	100	100	100	100	94	2,700
Idaho	100	100	100	100	200	94	2,900
Illinois	97	97	97	97	200	94	4,100
Indiana	100	100	100	100	100	95	2,700
Iowa	100	100	100	100	100	95	3,200
Kansas	100	100	100	100	100	95	3,300
Kentucky	100	100	100	100	100	94	2,800
Louisiana	100	100	100	100	100	94	2,700
Maine	100	100	99	99	200	94	2,600
Maryland	99	99	99	99	100	94	2,700
Massachusetts	100	100	100	100	200	95	3,900
Michigan	99	99	99	99	100	94	2,500
Minnesota	97	97	98	98	100	94	2,600
Mississippi	100	100	100	100	100	94	2,800
Missouri	100	100	100	100	200	94	2,800
Montana	98	98	98	98	300	94	2,700
Nebraska	100	100	100	100	200	95	3,100
Nevada	100	100	100	100	100	93	2,900
New Hampshire	97	97	99	99	200	93	2,600
New Jersey	98	98	98	98	100	94	2,800
New Mexico	100	100	100	100	200	94	2,800
New York	100	100	100	100	200	91	5,000
North Carolina	100	100	100	100	200	95	4,100
North Dakota	100	100	100	100	300	96	2,200
Ohio	100	100	100	100	200	94	3,500
Oklahoma	100	100	100	100	200	94	2,700
Oregon	100	100	99	99	200	93	2,700
Pennsylvania	100	100	100	100	100	94	3,500
Rhode Island	100	100	100	100	100	95	2,700
South Carolina	100	100	100	100	100	95	2,800
South Dakota	100	100	100	100	300	96	2,800
Tennessee	100	100	100	100	100	94	2,900
Texas	100	100	100	100	400	94	8,400
Utah	100	100	100	100	100	94	2,900
Vermont	100	100	100	100	200	94	2,100
Virginia	99	99	99	99	100	94	2,700
Washington	100	100	100	100	100	93	2,800
West Virginia	100	100	100	100	200	94	2,700
Wisconsin	97	97	97	97	200	94	2,600
Wyoming	100	100	99	99	200	95	1,800
Other jurisdictions							
District of Columbia	100	100	100	100	100	93	2,200
DoDEA[1]	100	100	99	99	100	92	2,400

[1] Department of Defense Education Activity (overseas and domestic schools). Before 2005, DoDEA overseas and domestic schools were separate jurisdictions in NAEP.

NOTE: The numbers of schools and students are rounded to the nearest hundred. Detail may not sum to totals because of rounding. Columns of percentages have different denominators; see accompanying text for definitions.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2005 Mathematics Assessment.

Table A-7. School and student participation rates, grade 8 public schools: By state, 2005

State/jurisdiction	School participation					Student participation	
	Student-weighted		School-weighted				
	Percent before substitution	Percent after substitution	Percent before substitution	Percent after substitution	Number of schools participating after substitution	Student-weighted percent	Number of students assessed
Nation (public)	**99**	**99**	**99**	**99**	**6,500**	**91**	**152,800**
Alabama	100	100	100	100	100	92	2,300
Alaska	99	99	96	96	100	91	2,600
Arizona	100	100	100	100	100	88	2,800
Arkansas	100	100	100	100	100	91	2,700
California	99	99	98	98	400	91	9,800
Colorado	98	98	99	99	100	89	2,400
Connecticut	100	100	100	100	100	90	2,700
Delaware	100	100	100	100	< 50	90	2,500
Florida	100	100	96	96	200	90	3,900
Georgia	100	100	100	100	100	93	3,900
Hawaii	100	100	100	100	100	89	2,700
Idaho	100	100	100	100	100	94	2,900
Illinois	98	98	99	99	200	92	4,000
Indiana	98	98	99	99	100	92	2,700
Iowa	100	100	100	100	100	93	2,700
Kansas	100	100	100	100	100	93	2,700
Kentucky	100	100	100	100	100	92	2,800
Louisiana	100	100	100	100	100	91	2,300
Maine	98	98	100	100	100	89	2,500
Maryland	99	99	99	99	100	88	2,600
Massachusetts	97	97	94	94	100	91	3,500
Michigan	100	100	100	100	100	88	2,400
Minnesota	98	98	99	99	100	89	2,600
Mississippi	100	100	100	100	100	93	2,700
Missouri	100	100	100	100	100	90	2,700
Montana	98	98	96	96	200	93	2,700
Nebraska	100	100	100	100	100	93	2,800
Nevada	100	100	100	100	100	88	2,700
New Hampshire	96	96	99	99	100	91	2,400
New Jersey	99	99	98	98	100	90	2,600
New Mexico	100	100	98	98	100	90	2,700
New York	100	100	100	100	200	85	4,300
North Carolina	100	100	100	100	100	90	3,900
North Dakota	100	100	99	99	200	94	2,400
Ohio	100	100	100	100	100	90	3,300
Oklahoma	100	100	100	100	100	92	2,500
Oregon	100	100	100	100	100	91	2,500
Pennsylvania	100	100	100	100	100	92	2,800
Rhode Island	100	100	100	100	100	91	2,800
South Carolina	100	100	100	100	100	93	2,600
South Dakota	100	100	100	100	200	94	2,800
Tennessee	100	100	100	100	100	91	2,400
Texas	100	100	100	100	300	92	7,900
Utah	100	100	100	100	100	91	2,800
Vermont	100	100	100	100	100	92	2,300
Virginia	100	100	100	100	100	93	2,600
Washington	100	100	98	98	100	90	2,700
West Virginia	100	100	100	100	100	91	2,600
Wisconsin	96	96	96	96	100	91	2,500
Wyoming	100	100	100	100	100	91	2,000
Other jurisdictions							
District of Columbia	100	100	100	100	< 50	86	1,900
DoDEA[1]	100	100	99	99	100	93	1,700

[1] Department of Defense Education Activity (overseas and domestic schools). Before 2005, DoDEA overseas and domestic schools were separate jurisdictions in NAEP.

NOTE: The numbers of schools and students are rounded to the nearest hundred, or indicated as < 50 where the value was between 1 and 49. Detail may not sum to totals because of rounding. Columns of percentages have different denominators; see accompanying text for definitions

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2005 Mathematics Assessment.

District Samples

Results from the 2005 mathematics assessment are also reported for district-level samples of fourth- and eighth-grade students in the large urban school districts that participated in the Trial Urban District Assessment (TUDA)—Atlanta City, Austin, Boston School District, Charlotte-Mecklenburg Schools, City of Chicago School District 299, Cleveland Municipal School District, Houston Independent School District, Los Angeles Unified, New York City Public Schools, and San Diego City Unified. The District of Columbia, which is regularly included in NAEP assessments as a jurisdiction, also participated in TUDA. The sample of students in the urban school districts represents an augmentation of the sample of students who would usually be selected as part of state samples. These samples allow reliable reporting of student groups within these districts. Furthermore, all students at more local geographic sampling levels are assumed to be part of broader samples. For example, Houston is one of the urban districts included in the TUDA. Data from students tested in the Houston sample were used to report results for Houston, but also contributed to the Texas and national estimates. Participation rates for the urban district samples are presented in table A-8.

Table A-8. School and student participation rates, grades 4 and 8 public schools: By urban district, 2005

	School participation		Student participation	
District	Student-weighted percent before substitution	Number of schools participating	Student-weighted percent	Number of students assessed
Grade 4				
Atlanta	100	100	95	1,200
Austin	100	100	94	1,300
Boston	99	100	93	1,200
Charlotte	100	100	94	1,500
Chicago	100	100	95	2,100
Cleveland	100	100	90	1,000
District of Columbia	100	100	93	2,200
Houston	100	100	96	2,000
Los Angeles	100	100	93	2,100
New York City	100	100	92	2,000
San Diego	100	100	95	1,400
Grade 8				
Atlanta	100	< 50	90	1,100
Austin	100	< 50	90	1,200
Boston	99	< 50	91	1,100
Charlotte	100	< 50	90	1,400
Chicago	100	100	93	1,900
Cleveland	100	< 50	80	900
District of Columbia	100	< 50	86	1,900
Houston	100	< 50	88	1,700
Los Angeles	99	100	89	1,900
New York City	100	100	83	1,800
San Diego	100	< 50	89	1,300

NOTE: The numbers of schools and students are rounded to the nearest hundred, or indicated as < 50 where the value was between 1 and 49.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2005 Trial Urban District Mathematics Assessment.

Standards for State Sample Participation and Reporting of Results

In carrying out the 2005 state assessment program, the NAEP program in the National Center for Education Statistics (NCES) established participation rate standards that jurisdictions were required to meet in order for their results to be reported. Participation rates before substitution needed to be at least 80 percent for schools and at least 85 percent for students. In the 2005 mathematics assessment, at both the fourth and eighth grades, all jurisdictions met NAEP participation rate standards and the National Assessment Governing Board (NAGB) standard of 85 percent school participation. Further information on the NCES guidelines used to report results in the state assessments, and the guidelines for notations when there was some risk of nonresponse bias in the reported results prior to the 2003 assessments, can be found in the NAEP 2000 mathematics report card (NCES 2001-517, see appendix A, "Standards for Sample Participation and Reporting of Results").

Inclusion of Students With Disabilities (SD) and/or English Language Learners (ELL)

It is NAEP's intent to assess all selected students from the target population. Therefore, every effort is made to ensure that all selected students who are capable of participating in the assessment are assessed. Some students sampled for participation in NAEP can be excluded from the sample according to carefully defined criteria. These criteria were revised in 1996 to communicate more clearly a presumption of inclusion except under special circumstances. According to these criteria, students who had an Individualized Education Program (IEP) or were protected under Section 504 of the Rehabilitation Act of 1973 were to be included in the NAEP assessment except when

- the school's IEP team determined that the student could not participate, because the student's cognitive functioning was so severely impaired that the student could not participate, or
- the student's IEP required that the student had to be tested with an accommodation or adaptation that NAEP does not allow, and the student could not demonstrate his or her knowledge without that accommodation.

All English language learners who received academic instruction in English for three years or more were to be included in the assessment. Those students identified as ELL who received instruction in English for fewer than three years were to be included unless school staff judged them to be incapable of participating in the assessment in English.

Participation of SD/ELL Students in the NAEP Samples

Testing all sampled students is the best way for NAEP to ensure that the statistics generated by the assessment are as representative as possible of the performance of the entire national population and the populations of participating jurisdictions. However, all groups of students include certain proportions that cannot be tested in large-scale assessments (such as students who have profound mental disabilities) or who can only be tested through the use of testing accommodations such as extra time, one-on-one administration, or use of magnifying equipment. Some students with disabilities and some English language learners cannot show on a test what they know and can do unless they are provided with accommodations. When such accommodations are not allowed, students requiring such adjustments are often excluded from large-scale assessments such as NAEP. This phenomenon has become more common since the 1990's, particularly with the passage of the 1997 Individuals with Disabilities Education Act (IDEA), which led schools and states to identify increasing proportions of students as needing accommodations on assessments in order to best show what they know and can do.[6] Furthermore, Section 504 of the Rehabilitation Act of 1973 requires that, when students with disabilities are tested, schools must provide them with appropriate accommodations so that the test results accurately reflect students' achievement. In addition, as the proportion of English language learners in the population has increased, some states have started offering accommodations such as translations of assessments or the use of bilingual dictionaries as part of assessments.

Before 1996, NAEP did not allow any testing under nonstandard conditions, and accommodations were not permitted. At that time, NAEP samples were able to include almost all sampled students in standard assessment sessions. However, as the influence of IDEA grew more widespread, the failure to provide accommodations led to increasing levels of exclusion in the assessment. Such increases posed two threats to the program: they threatened the stability of trend lines (because excluding more students in one assessment year than in another might lead to apparent rather than real differences), and they made NAEP samples less than optimally representative of target populations.

A multipart strategy was adopted as a response to this challenge. The program had to move toward allowing the same assessment accommodations that were afforded students in state and district testing programs in order for NAEP samples to be as inclusive as possible. However, to allow accommodations would represent a change in testing conditions that might affect measurement of changes over time. Therefore, beginning with the 1996 national assessments (in mathematics and science) and the 1998 state assessments (reading and writing), and up to 2000, NAEP assessed a series of parallel samples of students. In one set of samples, testing accommodations were not permitted; this allowed NAEP to maintain the measurement of achievement trends. Parallel samples in which accommodations were permitted were also assessed. By having two overlapping samples[7] and two sets of related data points, NAEP could meet two core program goals. First, data trends could be maintained. Second, parallel trend lines could be reported during the interim until the program transitioned to a sample with accommodations permitted as its only reporting format. Starting in 2002, NAEP has used only the more inclusive procedures, in which assessment accommodations are permitted. In mathematics, national and state data from 1990, 1992, 1996, and 2000 are reported for the sample in which accommodations were not permitted. National and state data for the sample in which accommodations were permitted are reported for 2000, 2003, and 2005. National-only data for the accommodated samples are reported for 1996.

In order to make it possible to evaluate both the impact of increasing exclusion rates in some jurisdictions and differences between jurisdictions, complete data on exclusion in all years are included in this appendix. Because the exclusion rates may affect trend measurement within a jurisdiction, readers should consider the magnitude of exclusion rate changes when interpreting score changes in jurisdictions. In addition, different rates of exclusion may influence the meaning of state comparisons. Thus, exclusion data should be reviewed in this context as well.

Table A-9 presents the percentages of all public and nonpublic school students who were identified as students with disabilities (SD) or as English language learners (ELL), or both, for assessments where accommodations were not permitted. The table also includes the percentages of all students who were excluded SD and/or ELL and the percentages of all students who were assessed SD and/or ELL for those assessments. The denominator for these percentages includes assessed students plus excluded students; it does not include sampled students who were absent or refused to participate. Tables A-10 through A-15 show similar information by state and jurisdiction.

Table A-16 presents the percentages of all public and nonpublic school students who were identified as SD and/or ELL for assessments where accommodations were permitted. This table also includes the percentages of all students who were SD and/or ELL who were excluded, assessed, assessed without accommodations, and assessed with accommodations for students. Similar information is presented for states and jurisdictions in tables A-17 through A-22, and for districts that participated in the Trial Urban District Assessment in tables A-23 and A-24.

In the 2005 national sample, 3 percent of all students at grade 4 and 3 percent of all students at grade 8 were excluded from the assessment (see table A-16). Across the various jurisdictions that participated in the 2005 state assessment, the percentage of students excluded ranged from 1 to 8 percent at grade 4 (see table A-17) and from 1 to 11 percent at grade 8 (see table A-20). At the district level, between 1 and 10 percent of students were excluded at grade 4 (see table A-23) and between 1 and 10 percent were excluded at grade 8 (see table A-24).

Table A-9. Percentages of all students identified as students with disabilities and/or English language learners, excluded, and assessed, when accommodations were *not* permitted, grades 4 and 8, public and nonpublic schools: 1992 and 1996

Student characteristics	1992	1996
Grade 4		
SD and/or ELL		
Identified	9	14
Excluded	6	6
Assessed	3	8
SD only		
Identified	7	11
Excluded	4	5
Assessed	3	6
ELL only		
Identified	3	3
Excluded	2	1
Assessed	1	2
Grade 8		
SD and/or ELL		
Identified	9	11
Excluded	6	4
Assessed	4	6
SD only		
Identified	7	9
Excluded	4	4
Assessed	3	5
ELL only		
Identified	2	3
Excluded	2	1
Assessed	1	2

NOTE: SD = students with disabilities. ELL = English language learners. Students identified as both SD and ELL were counted only once under the combined SD and/or ELL category, but were counted separately under the SD and ELL categories. Detail may not sum to totals because of rounding.

SOUCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1992 and 1996 Mathematics Assessments.

Table A-10. Percentages of all students identified as students with disabilities and/or English language learners, excluded, and assessed, when accommodations were *not* permitted, grade 4 public schools: By state, various years, 1992–2000

State/jurisdiction	1992			1996			2000		
	Identified	Excluded	Assessed	Identified	Excluded	Assessed	Identified	Excluded	Assessed
Nation (public)	**10**	**7**	**4**	**16**	**6**	**9**	**16**	**7**	**9**
Alabama	10	5	6	12	6	5	13	6	7
Alaska	—	—	—	20	4	16	—	—	—
Arizona	15	5	10	21	12	9	25	12	13
Arkansas	12	5	6	10	7	3	14	7	7
California	28	12	16	33	16	17	33	9	24
Colorado	10	5	5	15	8	7	—	—	—
Connecticut	14	7	7	16	8	8	15	10	5
Delaware	12	5	6	14	7	7	—	—	—
Florida	17	8	8	19	10	9	—	—	—
Georgia	10	5	4	13	7	6	11	7	4
Hawaii	13	6	8	14	6	9	19	10	9
Idaho	9	3	6	—	—	—	16	6	10
Illinois	—	—	—	—	—	—	17	10	6
Indiana	7	3	4	11	5	6	11	7	5
Iowa	9	3	6	13	6	7	15	10	5
Kansas	—	—	—	—	—	—	16	7	9
Kentucky	8	3	5	10	6	4	12	8	3
Louisiana	8	4	4	14	8	7	16	8	8
Maine	14	6	8	15	8	7	16	10	6
Maryland	11	4	7	14	8	7	12	9	4
Massachusetts	18	7	11	18	9	9	19	10	9
Michigan	7	5	2	11	6	5	11	8	3
Minnesota	9	3	6	14	6	8	16	6	10
Mississippi	7	5	2	8	6	2	6	4	2
Missouri	12	4	7	14	5	9	15	10	6
Montana	—	—	—	10	5	5	12	5	7
Nebraska	13	4	8	15	5	10	18	8	10
Nevada	—	—	—	16	9	8	20	10	9
New Hampshire	12	4	8	—	—	—	—	—	—
New Jersey	11	6	6	11	6	5	—	—	—
New Mexico	15	7	8	22	12	10	31	12	19
New York	12	5	6	15	8	7	16	12	4
North Carolina	12	4	8	14	7	7	16	13	3
North Dakota	9	2	7	11	4	7	12	6	6
Ohio	10	6	4	—	—	—	12	10	2
Oklahoma	13	7	6	—	—	—	20	10	10
Oregon	—	—	—	19	9	10	18	8	11
Pennsylvania	9	4	5	9	5	4	—	—	—
Rhode Island	15	6	10	18	6	12	23	12	11
South Carolina	10	5	5	12	6	7	17	7	10
Tennessee	12	4	8	13	6	6	11	4	7
Texas	17	8	9	24	10	14	25	15	10
Utah	10	4	6	13	6	7	14	7	7
Vermont	—	—	—	14	6	8	15	11	5
Virginia	11	5	6	14	7	7	16	11	5
Washington	—	—	—	13	5	8	—	—	—
West Virginia	9	4	4	13	8	5	13	10	3
Wisconsin	11	5	5	12	8	4	19	12	8
Wyoming	10	4	7	13	4	9	15	6	9
Other jurisdictions									
District of Columbia	11	9	2	14	11	3	19	9	10
DoDEA[1]	—	—	—	9	4	5	11	5	6

— Not available. The jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

[1] Department of Defense Education Activity (overseas and domestic schools). Before 2005, DoDEA overseas and domestic schools were separate jurisdictions in NAEP. Pre-2005 data presented here were recalculated for comparability.

NOTE: Detail may not sum to totals because of rounding. South Dakota did not participate in NAEP mathematics assessments from 1992 to 2000.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1992–2000 Mathematics Assessments.

Table A-11. Percentages of all students identified as students with disabilities, excluded, and assessed, when accommodations were *not* permitted, grade 4 public schools: By state, various years, 1992–2000

State/jurisdiction	1992			1996			2000		
	Identified	Excluded	Assessed	Identified	Excluded	Assessed	Identified	Excluded	Assessed
Nation (public)	**7**	**5**	**3**	**12**	**5**	**7**	**12**	**6**	**6**
Alabama	10	4	6	11	6	5	12	6	7
Alaska	—	—	—	13	4	10	—	—	—
Arizona	7	3	4	10	7	3	11	6	4
Arkansas	11	5	6	9	6	3	13	7	6
California	7	3	4	8	5	3	8	3	5
Colorado	8	4	4	12	7	5	—	—	—
Connecticut	10	4	6	14	7	7	11	8	3
Delaware	11	5	6	12	6	6	—	—	—
Florida	13	7	6	14	7	7	—	—	—
Georgia	9	5	4	11	6	5	9	6	4
Hawaii	10	5	5	10	4	5	13	8	5
Idaho	8	3	5	—	—	—	12	5	6
Illinois	—	—	—	—	—	—	11	7	4
Indiana	6	3	3	11	5	6	11	6	4
Iowa	8	3	5	11	5	6	14	10	4
Kansas	—	—	—	—	—	—	12	6	6
Kentucky	8	3	5	10	6	4	11	8	3
Louisiana	7	4	3	13	7	6	15	7	8
Maine	14	6	8	14	7	7	16	10	6
Maryland	10	3	7	13	7	6	11	8	3
Massachusetts	15	6	9	15	7	8	14	8	6
Michigan	7	5	2	10	6	4	9	7	2
Minnesota	7	3	4	11	5	6	12	4	7
Mississippi	7	5	2	8	6	2	6	4	2
Missouri	12	4	7	14	5	9	15	9	5
Montana	—	—	—	10	5	5	11	5	5
Nebraska	12	4	8	14	4	10	16	6	9
Nevada	—	—	—	9	5	4	10	6	4
New Hampshire	12	4	8	—	—	—	—	—	—
New Jersey	8	3	5	9	5	4	—	—	—
New Mexico	12	6	6	14	8	6	15	9	6
New York	7	3	3	10	5	5	11	9	2
North Carolina	11	3	8	13	6	6	14	12	2
North Dakota	8	2	7	10	3	7	12	6	6
Ohio	10	6	4	—	—	—	12	10	2
Oklahoma	11	7	4	—	—	—	16	10	6
Oregon	—	—	—	13	6	7	14	6	7
Pennsylvania	8	3	5	8	4	4	—	—	—
Rhode Island	10	4	7	13	5	8	16	9	7
South Carolina	10	5	5	12	5	7	17	7	9
Tennessee	11	4	8	12	6	6	10	4	7
Texas	9	5	5	12	7	5	15	10	5
Utah	9	4	5	11	5	6	9	5	4
Vermont	—	—	—	14	6	8	14	10	4
Virginia	10	5	5	12	6	6	13	10	3
Washington	—	—	—	10	5	6	—	—	—
West Virginia	9	4	4	13	8	5	13	10	3
Wisconsin	9	5	5	10	7	3	15	10	5
Wyoming	9	3	6	12	4	8	13	5	8
Other jurisdictions									
District of Columbia	8	7	1	9	7	1	14	7	7
DoDEA[1]	—	—	—	8	4	4	8	4	4

— Not available. The jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

[1] Department of Defense Education Activity (overseas and domestic schools). Before 2005, DoDEA overseas and domestic schools were separate jurisdictions in NAEP. Pre-2005 data presented here were recalculated for comparability.

NOTE: Detail may not sum to totals because of rounding. South Dakota did not participate in NAEP mathematics assessments from 1992 to 2000.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1992–2000 Mathematics Assessments.

Table A-12. Percentages of all students identified as English language learners, excluded, and assessed, when accommodations were *not* permitted, grade 4 public schools: By state, various years, 1992–2000

State/jurisdiction	1992			1996			2000		
	Identified	Excluded	Assessed	Identified	Excluded	Assessed	Identified	Excluded	Assessed
Nation (public)	**3**	**2**	**1**	**4**	**2**	**2**	**6**	**2**	**3**
Alabama	#	#	#	#	#	#	1	#	#
Alaska	—	—	—	8	1	6	—	—	—
Arizona	8	2	6	12	7	6	16	7	9
Arkansas	1	#	#	#	#	#	1	#	1
California	22	10	12	26	12	14	27	7	20
Colorado	2	1	1	4	2	2	—	—	—
Connecticut	4	2	1	3	2	1	4	2	1
Delaware	1	1	#	2	1	1	—	—	—
Florida	4	2	2	6	3	3	—	—	—
Georgia	1	1	#	2	2	1	2	1	1
Hawaii	4	2	3	5	1	4	7	3	4
Idaho	2	1	1	—	—	—	5	2	4
Illinois	—	—	—	—	—	—	7	4	2
Indiana	#	#	#	#	#	#	1	1	#
Iowa	1	#	1	2	1	1	1	1	#
Kansas	—	—	—	—	—	—	5	2	3
Kentucky	#	#	#	#	#	#	#	#	#
Louisiana	1	#	1	1	1	#	1	1	1
Maine	#	#	#	#	#	#	1	#	#
Maryland	1	1	1	1	1	#	2	2	#
Massachusetts	3	1	2	4	2	1	6	3	3
Michigan	1	1	#	2	1	1	2	2	1
Minnesota	2	#	2	3	1	2	5	2	3
Mississippi	#	#	#	#	#	#	#	#	#
Missouri	#	#	#	1	#	#	1	#	#
Montana	—	—	—	#	#	#	2	#	2
Nebraska	1	#	1	2	1	1	4	3	1
Nevada	—	—	—	8	4	4	11	5	6
New Hampshire	#	#	#	—	—	—	—	—	—
New Jersey	4	2	1	2	1	1	—	—	—
New Mexico	4	1	2	10	5	5	20	6	14
New York	5	2	3	6	3	3	6	4	3
North Carolina	1	#	#	2	1	1	3	2	1
North Dakota	1	#	#	#	#	#	1	#	#
Ohio	1	#	1	—	—	—	1	#	#
Oklahoma	2	#	1	—	—	—	5	2	4
Oregon	—	—	—	6	3	3	6	2	3
Pennsylvania	1	1	#	1	1	#	—	—	—
Rhode Island	6	3	3	5	2	4	7	3	4
South Carolina	#	#	#	#	#	#	1	1	#
Tennessee	#	#	#	1	1	#	1	#	#
Texas	9	4	5	13	5	9	13	7	5
Utah	1	1	#	2	1	1	6	3	3
Vermont	—	—	—	1	#	#	2	1	1
Virginia	1	1	1	2	1	1	4	2	2
Washington	—	—	—	3	1	2	—	—	—
West Virginia	#	#	#	#	#	#	#	#	#
Wisconsin	1	1	1	2	1	1	5	3	3
Wyoming	1	#	1	1	#	#	2	1	2
Other jurisdictions									
District of Columbia	4	2	1	6	4	1	6	3	4
DoDEA[1]	—	—	—	2	1	1	3	1	2

— Not available. The jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

The estimate rounds to zero.

[1] Department of Defense Education Activity (overseas and domestic schools). Before 2005, DoDEA overseas and domestic schools were separate jurisdictions in NAEP. Pre-2005 data presented here were recalculated for comparability.

NOTE: Detail may not sum to totals because of rounding. South Dakota did not participate in NAEP mathematics assessments from 1992 to 2000.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1992–2000 Mathematics Assessments.

Table A-13. Percentages of all students identified as students with disabilities and/or English language learners, excluded, and assessed, when accommodations were *not* permitted, grade 8 public schools: By state, various years, 1990–2000

	1990			1992			1996			2000		
State/jurisdiction	Identified	Excluded	Assessed	Identified	Excluded	Assessed	Identified	Excluded	Assessed	Identified	Excluded	Assessed
Nation (public)	**—**	**—**	**—**	**10**	**6**	**4**	**11**	**5**	**7**	**15**	**7**	**8**
Alabama	9	5	4	10	5	5	13	7	6	14	5	9
Alaska	—	—	—	—	—	—	15	5	10	—	—	—
Arizona	12	5	7	12	6	7	17	9	8	19	9	10
Arkansas	11	7	3	11	6	5	11	7	4	14	8	5
California	15	7	8	20	8	12	20	10	10	27	9	18
Colorado	10	4	5	10	4	5	12	4	8	—	—	—
Connecticut	11	6	5	14	7	8	15	8	7	16	10	6
Delaware	9	4	5	10	4	6	13	9	4	—	—	—
Florida	11	6	5	13	6	7	16	10	6	—	—	—
Georgia	7	3	3	8	5	3	10	7	3	11	7	3
Hawaii	10	4	5	13	5	8	12	5	7	20	7	13
Idaho	6	2	4	7	3	4	—	—	—	14	5	9
Illinois	9	5	4	—	—	—	—	—	—	15	8	7
Indiana	7	5	2	9	5	4	12	6	7	12	7	5
Iowa	10	4	6	11	4	6	13	5	7	—	—	—
Kansas	—	—	—	—	—	—	—	—	—	14	6	8
Kentucky	7	5	3	9	5	4	9	5	5	14	9	4
Louisiana	6	4	2	7	4	3	10	6	4	13	6	7
Maine	—	—	—	11	4	6	12	5	7	15	9	6
Maryland	11	4	6	11	5	6	12	7	5	13	11	3
Massachusetts	—	—	—	18	8	9	17	8	9	19	12	7
Michigan	8	4	4	9	6	3	9	5	4	11	7	4
Minnesota	9	3	6	7	3	4	11	3	8	15	5	10
Mississippi	—	—	—	10	7	3	11	7	4	11	7	3
Missouri	—	—	—	11	4	6	12	7	5	15	9	6
Montana	6	2	4	—	—	—	9	3	6	12	5	6
Nebraska	9	3	6	10	4	6	12	4	8	13	3	10
Nevada	—	—	—	—	—	—	16	8	8	16	10	6
New Hampshire	12	4	8	12	5	7	15	4	11	—	—	—
New Jersey	12	7	5	14	7	7	13	7	6	—	—	—
New Mexico	9	6	3	12	5	7	18	8	10	25	12	14
New York	12	6	6	13	8	4	14	8	6	16	13	3
North Carolina	9	3	6	12	3	9	9	4	5	16	14	2
North Dakota	8	3	5	8	2	5	10	3	6	11	4	7
Ohio	8	5	3	10	6	4	—	—	—	11	9	3
Oklahoma	8	5	3	10	6	4	—	—	—	15	9	6
Oregon	8	3	5	—	—	—	12	4	8	17	6	11
Pennsylvania	10	5	5	9	4	5	—	—	—	—	—	—
Rhode Island	14	6	8	14	5	8	17	7	10	20	12	8
South Carolina	—	—	—	10	6	4	10	6	4	13	7	6
Tennessee	—	—	—	10	5	5	11	4	7	13	5	8
Texas	12	6	6	14	7	7	17	9	8	20	10	11
Utah	—	—	—	9	4	5	11	6	5	14	6	8
Vermont	—	—	—	—	—	—	12	4	8	17	10	7
Virginia	9	5	4	12	5	7	13	7	6	15	10	5
Washington	—	—	—	—	—	—	13	6	7	—	—	—
West Virginia	9	5	4	10	6	4	13	8	4	15	11	3
Wisconsin	8	4	4	10	4	6	12	7	5	17	10	7
Wyoming	8	3	5	9	4	5	10	2	8	13	4	9
Other jurisdictions												
District of Columbia	6	5	1	11	10	2	13	10	4	15	9	6
DoDEA[1]	—	—	—	—	—	—	8	3	5	9	5	3

— Not available. The jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

[1] Department of Defense Education Activity (overseas and domestic schools). Before 2005, DoDEA overseas and domestic schools were separate jurisdictions in NAEP. Pre-2005 data presented here were recalculated for comparability.

NOTE: Detail may not sum to totals because of rounding. South Dakota did not participate in NAEP mathematics assessments from 1990 to 2000.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1990–2000 Mathematics Assessments.

Table A-14. Percentages of all students identified as students with disabilities, excluded, and assessed, when accommodations were *not* permitted, grade 8 public schools: By state, various years, 1990–2000

State/jurisdiction	1990			1992			1996			2000		
	Identified	Excluded	Assessed	Identified	Excluded	Assessed	Identified	Excluded	Assessed	Identified	Excluded	Assessed
Nation (public)	**—**	**—**	**—**	**8**	**5**	**3**	**9**	**4**	**5**	**12**	**6**	**6**
Alabama	9	5	4	10	5	5	13	7	6	14	5	9
Alaska	—	—	—	—	—	—	10	5	6	—	—	—
Arizona	7	3	3	6	4	2	9	5	4	11	7	4
Arkansas	10	7	3	11	6	5	11	7	4	12	8	4
California	7	3	4	8	4	4	8	5	4	10	6	5
Colorado	8	4	5	8	4	5	11	4	7	—	—	—
Connecticut	9	5	4	12	5	6	13	7	6	14	9	5
Delaware	9	4	5	9	4	5	12	8	4	—	—	—
Florida	8	5	4	9	5	4	12	7	5	—	—	—
Georgia	6	3	3	7	4	3	9	6	3	10	7	3
Hawaii	7	3	3	9	3	5	9	4	5	15	6	9
Idaho	6	2	4	7	3	4	—	—	—	10	5	6
Illinois	8	4	4	—	—	—	—	—	—	11	6	5
Indiana	7	5	2	8	4	4	12	5	6	11	7	4
Iowa	9	4	6	10	4	6	12	5	7	—	—	—
Kansas	—	—	—	—	—	—	—	—	—	10	5	5
Kentucky	7	5	3	9	5	4	9	4	5	13	9	4
Louisiana	6	4	2	7	4	3	9	6	3	13	6	7
Maine	—	—	—	11	4	6	11	5	6	14	9	5
Maryland	9	4	5	9	4	5	11	6	5	12	10	3
Massachusetts	—	—	—	14	6	8	15	7	9	16	10	6
Michigan	8	4	4	9	6	3	8	5	3	10	6	4
Minnesota	8	3	6	7	3	4	10	3	7	13	4	8
Mississippi	—	—	—	10	7	3	11	7	4	10	7	3
Missouri	—	—	—	11	4	6	11	6	4	14	8	6
Montana	6	2	4	—	—	—	9	3	6	11	5	5
Nebraska	8	3	5	9	4	6	11	4	7	11	3	8
Nevada	—	—	—	—	—	—	9	5	4	12	8	3
New Hampshire	12	4	7	12	5	7	14	4	11	—	—	—
New Jersey	10	5	4	12	6	6	10	5	5	—	—	—
New Mexico	8	6	3	10	4	6	13	5	9	17	10	7
New York	8	4	4	10	6	4	10	5	4	12	10	1
North Carolina	9	3	6	12	3	9	8	4	5	14	13	2
North Dakota	7	2	5	7	2	5	9	3	6	11	4	7
Ohio	8	5	3	9	6	4	—	—	—	11	9	3
Oklahoma	7	5	2	9	6	3	—	—	—	13	8	5
Oregon	7	2	5	—	—	—	10	3	7	13	4	9
Pennsylvania	10	5	5	8	4	4	—	—	—	—	—	—
Rhode Island	11	5	6	10	4	7	13	5	7	16	9	7
South Carolina	—	—	—	10	6	4	10	6	4	13	7	6
Tennessee	—	—	—	10	5	5	11	4	7	12	4	8
Texas	8	4	3	9	5	4	11	6	5	14	8	6
Utah	—	—	—	9	4	5	10	5	5	10	5	6
Vermont	—	—	—	—	—	—	12	4	8	16	9	7
Virginia	8	4	4	10	5	5	12	7	5	14	10	4
Washington	—	—	—	—	—	—	11	5	6	—	—	—
West Virginia	9	5	4	10	6	4	13	8	4	14	11	3
Wisconsin	7	4	3	9	4	5	11	7	4	16	10	6
Wyoming	8	3	4	9	4	5	10	2	8	12	4	8
Other jurisdictions												
District of Columbia	5	4	1	9	8	1	10	8	2	11	7	4
DoDEA[1]	—	—	—	—	—	—	7	2	5	6	4	3

— Not available. The jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

[1] Department of Defense Education Activity (overseas and domestic schools). Before 2005, DoDEA overseas and domestic schools were separate jurisdictions in NAEP. Pre-2005 data presented here were recalculated for comparability.

NOTE: Detail may not sum to totals because of rounding. South Dakota did not participate in NAEP mathematics assessments from 1990 to 2000.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1990–2000 Mathematics Assessments.

Table A-15. Percentages of all students identified as English language learners, excluded, and assessed, when accommodations were *not* permitted, grade 8 public schools: By state, various years, 1990–2000

State/jurisdiction	1990			1992			1996			2000		
	Identified	Excluded	Assessed	Identified	Excluded	Assessed	Identified	Excluded	Assessed	Identified	Excluded	Assessed
Nation (public)	**—**	**—**	**—**	**2**	**2**	**1**	**3**	**1**	**2**	**4**	**2**	**3**
Alabama	#	#	#	#	#	#	#	#	#	1	#	#
Alaska	—	—	—	—	—	—	5	1	4	—	—	—
Arizona	5	1	4	6	2	4	9	4	5	10	4	6
Arkansas	#	#	#	#	#	#	1	#	#	2	1	1
California	8	4	4	13	5	8	13	6	7	19	4	15
Colorado	1	1	#	1	1	1	2	1	1	—	—	—
Connecticut	2	1	1	3	1	1	2	2	1	2	1	1
Delaware	1	#	#	1	#	1	1	#	#	—	—	—
Florida	2	2	1	4	2	2	4	3	1	—	—	—
Georgia	#	#	#	1	#	#	2	1	#	1	1	#
Hawaii	3	1	2	5	2	3	4	1	2	6	2	4
Idaho	1	#	#	1	#	#	—	—	—	4	1	3
Illinois	1	1	#	—	—	—	—	—	—	5	2	3
Indiana	#	#	#	1	#	#	1	#	1	2	1	1
Iowa	#	#	#	1	#	1	#	#	#	—	—	—
Kansas	—	—	—	—	—	—	—	—	—	5	2	2
Kentucky	#	#	#	#	#	#	#	#	#	1	#	#
Louisiana	#	#	#	#	#	#	1	#	1	#	#	#
Maine	—	—	—	#	#	#	1	#	1	1	#	1
Maryland	1	1	1	1	1	1	1	1	#	2	1	#
Massachusetts	—	—	—	4	2	1	2	1	#	4	3	1
Michigan	#	#	#	1	#	#	1	1	1	1	1	#
Minnesota	1	#	1	#	#	#	1	#	1	2	1	1
Mississippi	—	—	—	#	#	#	#	#	#	#	#	#
Missouri	—	—	—	1	#	#	1	1	#	1	#	#
Montana	#	#	#	—	—	—	#	#	#	1	#	1
Nebraska	#	#	#	1	#	#	1	1	#	2	1	1
Nevada	—	—	—	—	—	—	7	3	4	5	3	2
New Hampshire	#	#	#	#	#	#	#	#	#	—	—	—
New Jersey	2	2	1	3	1	1	3	2	1	—	—	—
New Mexico	1	1	1	3	1	2	6	4	2	11	4	8
New York	4	2	2	3	3	1	5	3	2	6	4	2
North Carolina	#	#	#	#	#	#	1	1	#	3	3	#
North Dakota	1	#	1	1	#	1	#	#	#	1	#	#
Ohio	#	#	#	#	#	#	—	—	—	1	1	#
Oklahoma	1	#	#	1	#	1	—	—	—	2	1	1
Oregon	1	#	1	—	—	—	2	1	1	5	3	2
Pennsylvania	#	#	#	1	#	1	—	—	—	—	—	—
Rhode Island	4	2	2	4	2	2	4	2	2	4	3	1
South Carolina	—	—	—	#	#	#	#	#	#	#	#	#
Tennessee	—	—	—	#	#	#	#	#	#	1	1	#
Texas	5	2	3	6	2	4	7	3	4	8	3	5
Utah	—	—	—	1	1	#	2	1	#	4	2	2
Vermont	—	—	—	—	—	—	1	#	1	1	1	#
Virginia	1	1	#	2	1	2	1	1	1	2	1	1
Washington	—	—	—	—	—	—	2	1	1	—	—	—
West Virginia	#	#	#	#	#	#	#	#	#	#	#	#
Wisconsin	1	#	#	1	#	1	1	1	#	1	1	#
Wyoming	1	#	#	#	#	#	1	#	1	2	#	1
Other jurisdictions												
District of Columbia	1	1	#	3	2	1	4	3	2	4	3	2
DoDEA[1]	—	—	—	—	—	—	1	1	#	3	2	1

— Not available. The jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

The estimate rounds to zero.

[1] Department of Defense Education Activity (overseas and domestic schools). Before 2005, DoDEA overseas and domestic schools were separate jurisdictions in NAEP. Pre-2005 data presented here were recalculated for comparability.

NOTE: Detail may not sum to totals because of rounding. South Dakota did not participate in NAEP mathematics assessments from 1990 to 2000.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1990–2000 Mathematics Assessments.

Table A-16. Percentages of all students identified as students with disabilities and/or English language learners, excluded, and assessed, when accommodations were permitted, grades 4, 8, and 12 public and nonpublic schools: Various years, 1996–2005

Student characteristics	1996	2000	2003	2005
Grade 4				
SD and/or ELL				
Identified	15	18	21	21
Excluded	4	4	4	3
Assessed	11	14	17	18
Without accommodations	7	9	9	9
With accommodations	5	5	8	9
SD only				
Identified	10	12	13	13
Excluded	3	3	3	2
Assessed	7	9	10	10
Without accommodations	4	5	4	3
With accommodations	4	4	6	7
ELL only				
Identified	6	7	10	10
Excluded	1	1	1	1
Assessed	5	6	8	8
Without accommodations	3	4	6	6
With accommodations	2	1	2	2
Grade 8				
SD and/or ELL				
Identified	12	13	17	17
Excluded	3	4	3	3
Assessed	8	10	14	14
Without accommodations	6	7	7	6
With accommodations	3	3	6	8
SD only				
Identified	9	10	13	12
Excluded	3	3	3	3
Assessed	6	7	10	10
Without accommodations	4	5	4	3
With accommodations	2	2	6	7
ELL only				
Identified	3	4	6	6
Excluded	1	1	1	1
Assessed	2	3	5	5
Without accommodations	2	2	4	4
With accommodations	#	1	1	1
Grade 12				
SD and/or ELL				
Identified	†	†	—	13
Excluded	†	†	—	3
Assessed	†	†	—	10
Without accommodations	†	†	—	5
With accommodations	†	†	—	5
SD only				
Identified	†	†	—	10
Excluded	†	†	—	3
Assessed	†	†	—	7
Without accommodations	†	†	—	3
With accommodations	†	†	—	4
ELL only				
Identified	†	†	—	4
Excluded	†	†	—	1
Assessed	†	†	—	4
Without accommodations	†	†	—	3
With accommodations	†	†	—	1

— Not available. Data were not collected at grade 12 in 2003.

† Not applicable. Results from previous mathematics assessments at grade 12 are not reported with the results from 2005 because of a change in the framework.

The estimate rounds to zero.

NOTE: SD = students with disabilities. ELL = English language learners. Students identified as both SD and ELL were counted only once under the combined SD and/or ELL category, but were counted separately under the SD and ELL categories. Prior to 2005, students were identified as either ELL or non-ELL; in 2005, students were identified as ELL, non-ELL, or formerly ELL. NAEP sample sizes have increased in 2003 and 2005 compared to previous years. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1996–2005 Mathematics Assessments.

Table A-17. Percentages of all students identified as students with disabilities and/or English language learners, excluded, and assessed, when accommodations were permitted, grade 4 public schools: By state, various years, 2000–2005

State/jurisdiction	2000					2003				
	Identified	Excluded	Assessed	Assessed without accom-modations	Assessed with accom-modations	Identified	Excluded	Assessed	Assessed without accom-modations	Assessed with accom-modations
Nation (public)	**19**	**4**	**15**	**10**	**5**	**22**	**4**	**18**	**10**	**8**
Alabama	13	3	10	7	3	12	2	10	8	2
Alaska	—	—	—	—	—	31	1	30	20	10
Arizona	25	4	21	12	9	27	5	23	18	5
Arkansas	14	4	10	6	4	17	2	14	7	8
California	33	6	27	19	8	38	3	35	31	4
Colorado	—	—	—	—	—	20	2	17	7	11
Connecticut	14	5	10	5	4	16	4	12	5	8
Delaware	—	—	—	—	—	18	7	11	4	7
Florida	—	—	—	—	—	26	3	23	8	15
Georgia	11	3	8	4	4	16	2	14	6	7
Hawaii	19	9	11	8	3	17	3	14	5	8
Idaho	16	2	13	7	7	18	2	16	9	7
Illinois	17	3	14	5	9	23	4	18	7	11
Indiana	11	2	9	3	6	17	2	14	8	7
Iowa	15	2	12	5	7	18	3	15	4	11
Kansas	16	3	13	9	4	16	2	14	3	11
Kentucky	12	3	9	4	5	14	3	11	5	7
Louisiana	16	3	13	2	11	22	3	19	3	16
Maine	16	5	12	5	7	18	3	15	4	11
Maryland	12	2	10	4	6	16	4	12	6	6
Massachusetts	19	3	17	7	10	22	3	19	4	15
Michigan	11	3	8	3	4	15	4	11	5	6
Minnesota	16	2	14	7	7	18	3	16	8	7
Mississippi	6	3	3	1	2	10	5	5	4	1
Missouri	15	3	13	5	8	17	4	13	4	10
Montana	12	2	11	5	6	16	2	14	7	7
Nebraska	18	3	15	10	4	20	3	17	9	9
Nevada	20	7	13	8	5	26	4	22	14	8
New Hampshire	—	—	—	—	—	20	3	17	5	12
New Jersey	—	—	—	—	—	18	2	16	1	14
New Mexico	31	6	26	16	10	40	4	36	22	15
New York	16	5	11	2	9	19	5	14	2	11
North Carolina	16	5	11	3	8	21	4	17	5	12
North Dakota	12	1	11	7	4	18	2	16	8	7
Ohio	12	5	7	2	5	13	4	9	2	7
Oklahoma	20	5	15	11	5	22	4	18	10	8
Oregon	18	3	16	8	8	27	4	23	11	11
Pennsylvania	—	—	—	—	—	15	3	12	3	9
Rhode Island	23	3	20	10	10	27	3	24	9	15
South Carolina	17	5	12	7	5	18	6	12	7	4
South Dakota	—	—	—	—	—	18	1	16	9	7
Tennessee	11	3	9	7	1	14	3	11	7	5
Texas	25	7	18	12	6	27	7	20	14	6
Utah	14	3	11	7	4	21	3	19	11	7
Vermont	15	3	13	4	9	18	4	14	4	10
Virginia	16	4	12	5	7	19	6	13	5	8
Washington	—	—	—	—	—	19	3	16	8	8
West Virginia	13	3	11	3	8	15	3	12	3	9
Wisconsin	19	5	14	7	8	20	4	16	4	12
Wyoming	15	2	13	8	6	18	1	17	6	11
Other jurisdictions										
District of Columbia	19	5	14	7	7	18	4	14	4	10
DoDEA [1]	11	3	8	4	4	14	1	13	6	7

See notes at end of table.

Table A-17. Percentages of all students identified as students with disabilities and/or English language learners, excluded, and assessed, when accommodations were permitted, grade 4 public schools: By state, various years, 2000–2005—Continued

State/jurisdiction	2005				
	Identified	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations
Nation (public)	**23**	**3**	**20**	**10**	**10**
Alabama	13	1	12	9	3
Alaska	32	2	30	15	15
Arizona	29	4	25	17	8
Arkansas	16	3	13	5	8
California	39	4	35	31	5
Colorado	22	3	19	5	14
Connecticut	16	2	14	4	10
Delaware	20	8	12	5	7
Florida	25	3	21	5	17
Georgia	16	2	14	6	8
Hawaii	18	3	16	6	9
Idaho	18	1	17	9	8
Illinois	22	3	20	9	10
Indiana	18	2	16	5	11
Iowa	18	2	16	4	12
Kansas	19	3	16	6	10
Kentucky	15	3	13	3	9
Louisiana	24	4	20	3	18
Maine	20	4	16	5	12
Maryland	17	4	13	5	9
Massachusetts	24	4	19	6	13
Michigan	17	4	13	4	9
Minnesota	19	2	17	9	9
Mississippi	11	2	9	5	4
Missouri	18	2	16	6	10
Montana	14	2	12	4	8
Nebraska	23	2	21	9	12
Nevada	26	3	23	13	10
New Hampshire	22	2	20	5	14
New Jersey	18	3	15	4	11
New Mexico	36	3	33	15	18
New York	20	4	17	2	14
North Carolina	21	2	18	4	14
North Dakota	17	3	14	6	8
Ohio	13	3	9	2	8
Oklahoma	21	4	17	7	10
Oregon	27	4	23	11	11
Pennsylvania	18	3	15	4	11
Rhode Island	26	3	23	8	15
South Carolina	16	4	12	7	5
South Dakota	19	2	17	9	8
Tennessee	13	3	10	4	6
Texas	27	6	21	13	8
Utah	23	2	20	11	9
Vermont	18	3	15	5	10
Virginia	22	5	17	5	12
Washington	21	3	18	8	10
West Virginia	20	2	17	9	8
Wisconsin	19	2	17	5	12
Wyoming	19	2	17	6	11
Other jurisdictions					
District of Columbia	20	6	14	4	10
DoDEA [1]	17	2	15	6	8

— Not available. The jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

[1] Department of Defense Education Activity (overseas and domestic schools). Before 2005, DoDEA overseas and domestic schools were separate jurisdictions in NAEP. Pre-2005 data presented here were recalculated for comparability.

NOTE: Detail may not sum to totals because of rounding. Prior to 2005, students were identified as either English language learners (ELL) or non-ELL; in 2005, students were identified as ELL, non-ELL, or formerly ELL.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 2000–2005 Mathematics Assessments.

Table A-18. Percentages of all students identified as students with disabilities, excluded, and assessed, when accommodations were permitted, grade 4 public schools: By state, various years, 2000–2005

State/jurisdiction	2000					2003				
	Identified	Excluded	Assessed	Assessed without accom-modations	Assessed with accom-modations	Identified	Excluded	Assessed	Assessed without accom-modations	Assessed with accom-modations
Nation (public)	**13**	**3**	**9**	**5**	**4**	**14**	**3**	**11**	**4**	**7**
Alabama	13	3	9	7	3	11	2	10	7	2
Alaska	—	—	—	—	—	16	1	15	6	9
Arizona	11	3	8	4	4	12	3	9	5	3
Arkansas	12	4	8	5	4	14	1	12	5	8
California	8	3	5	4	1	10	2	8	6	2
Colorado	—	—	—	—	—	12	2	11	3	7
Connecticut	11	3	8	4	4	13	3	10	3	6
Delaware	—	—	—	—	—	16	6	10	3	7
Florida	—	—	—	—	—	18	2	16	4	12
Georgia	9	3	7	3	4	12	2	11	4	7
Hawaii	13	6	7	5	2	11	2	10	3	6
Idaho	12	1	11	5	6	12	1	11	4	7
Illinois	11	2	9	3	6	15	3	13	4	9
Indiana	10	2	8	3	5	14	2	12	6	6
Iowa	13	1	11	4	7	15	2	13	3	10
Kansas	12	3	9	5	4	14	1	12	2	10
Kentucky	11	3	8	3	5	13	3	11	4	7
Louisiana	15	3	13	2	11	21	3	18	3	16
Maine	15	4	11	4	7	18	3	14	4	10
Maryland	11	2	9	4	5	13	3	10	4	6
Massachusetts	14	1	14	5	9	18	2	16	2	14
Michigan	10	3	7	3	4	11	3	7	2	5
Minnesota	12	2	10	5	5	14	2	11	5	6
Mississippi	6	3	3	1	2	10	5	5	3	1
Missouri	14	2	12	5	7	15	3	12	3	9
Montana	12	2	10	5	6	14	2	12	5	7
Nebraska	15	2	13	9	4	16	2	14	6	8
Nevada	10	3	7	3	4	13	3	10	5	5
New Hampshire	—	—	—	—	—	18	3	16	4	11
New Jersey	—	—	—	—	—	14	2	13	1	12
New Mexico	15	5	10	5	5	17	2	15	7	9
New York	11	2	8	#	8	13	3	10	1	10
North Carolina	14	4	10	3	7	17	4	14	3	10
North Dakota	11	1	9	5	4	15	2	14	6	7
Ohio	12	4	7	2	5	12	4	8	2	7
Oklahoma	16	4	12	7	4	17	3	14	6	8
Oregon	14	2	12	6	5	17	4	14	7	7
Pennsylvania	—	—	—	—	—	13	2	11	2	9
Rhode Island	16	2	14	6	8	20	2	18	5	13
South Carolina	17	5	12	7	5	17	6	11	6	4
South Dakota	—	—	—	—	—	15	1	13	7	6
Tennessee	10	2	8	7	1	13	2	11	6	5
Texas	15	6	9	6	3	15	7	8	5	3
Utah	9	3	6	4	2	12	2	10	5	5
Vermont	15	3	12	4	8	17	4	13	4	10
Virginia	13	3	10	4	6	13	4	9	3	6
Washington	—	—	—	—	—	14	2	12	5	7
West Virginia	13	3	11	3	8	15	3	12	3	9
Wisconsin	15	4	10	5	6	15	3	12	2	10
Wyoming	14	2	12	6	6	15	1	14	3	11
Other jurisdictions										
District of Columbia	13	3	10	5	5	13	4	10	2	7
DoDEA[1]	8	2	6	3	4	10	1	9	2	6

See notes at end of table.

Table A-18. Percentages of all students identified as students with disabilities, excluded, and assessed, when accommodations were permitted, grade 4 public schools: By state, various years, 2000–2005—Continued

State/jurisdiction	2005				
	Identified	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations
Nation (public)	**14**	**3**	**11**	**4**	**8**
Alabama	11	1	10	7	3
Alaska	15	1	14	4	10
Arizona	11	3	9	3	5
Arkansas	13	2	11	3	8
California	10	2	8	4	3
Colorado	12	2	10	2	8
Connecticut	13	2	11	3	8
Delaware	16	7	9	2	7
Florida	18	2	16	3	12
Georgia	14	2	12	5	7
Hawaii	11	2	10	3	7
Idaho	11	1	10	3	7
Illinois	14	2	12	4	8
Indiana	15	1	14	4	10
Iowa	14	2	13	2	11
Kansas	14	2	11	3	8
Kentucky	14	2	12	3	9
Louisiana	24	4	20	3	17
Maine	19	3	16	4	12
Maryland	13	3	10	3	7
Massachusetts	18	3	15	3	12
Michigan	14	4	11	3	7
Minnesota	13	2	11	5	6
Mississippi	11	2	8	5	4
Missouri	16	2	14	5	9
Montana	12	2	10	2	7
Nebraska	18	2	16	6	10
Nevada	12	3	10	3	6
New Hampshire	20	2	18	4	14
New Jersey	15	2	13	3	10
New Mexico	14	2	13	3	10
New York	15	3	12	1	11
North Carolina	15	2	13	3	10
North Dakota	16	2	13	5	8
Ohio	12	3	9	2	7
Oklahoma	16	4	12	4	9
Oregon	15	3	11	5	7
Pennsylvania	16	2	13	3	10
Rhode Island	20	2	18	6	12
South Carolina	14	4	10	6	5
South Dakota	16	1	14	7	7
Tennessee	11	3	8	3	6
Texas	14	5	8	4	4
Utah	12	2	11	4	6
Vermont	16	3	13	4	9
Virginia	16	4	11	3	8
Washington	13	2	11	4	7
West Virginia	19	2	17	9	8
Wisconsin	14	2	12	2	10
Wyoming	15	1	14	3	11
Other jurisdictions					
District of Columbia	16	5	11	2	8
DoDEA[1]	10	1	9	2	7

— Not available. The jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

The estimate rounds to zero.

[1] Department of Defense Education Activity (overseas and domestic schools). Before 2005, DoDEA overseas and domestic schools were separate jurisdictions in NAEP. Pre-2005 data presented here were recalculated for comparability.

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 2000–2005 Mathematics Assessments.

Table A-19. Percentages of all students identified as English language learners, excluded, and assessed, when accommodations were permitted, grade 4 public schools: By state, various years, 2000–2005

State/jurisdiction	2000					2003				
	Identified	Excluded	Assessed	Assessed without accom-modations	Assessed with accom-modations	Identified	Excluded	Assessed	Assessed without accom-modations	Assessed with accom-modations
Nation (public)	**7**	**1**	**6**	**5**	**1**	**11**	**1**	**9**	**7**	**2**
Alabama	#	#	#	#	#	1	#	1	1	#
Alaska	—	—	—	—	—	18	#	18	15	3
Arizona	16	3	13	8	5	19	2	17	15	2
Arkansas	1	#	1	1	#	4	1	3	2	#
California	27	3	24	16	7	33	2	30	27	3
Colorado	—	—	—	—	—	9	1	9	4	4
Connecticut	3	1	2	1	1	4	1	3	1	2
Delaware	—	—	—	—	—	3	1	2	1	1
Florida	—	—	—	—	—	11	2	9	5	4
Georgia	2	1	1	1	#	4	1	4	3	1
Hawaii	7	3	4	4	#	7	2	5	3	2
Idaho	5	2	4	3	1	7	1	6	5	2
Illinois	7	2	5	2	3	9	2	7	4	3
Indiana	1	1	1	#	1	3	#	2	2	1
Iowa	2	1	1	1	#	4	1	3	2	1
Kansas	5	#	5	4	1	3	#	3	1	1
Kentucky	1	#	#	#	#	2	1	1	1	#
Louisiana	1	#	#	#	#	2	#	2	#	1
Maine	1	#	1	1	#	1	1	1	1	#
Maryland	2	1	1	1	#	4	2	2	2	1
Massachusetts	6	2	4	2	2	5	1	4	2	2
Michigan	1	1	#	#	#	5	1	4	3	1
Minnesota	5	1	4	2	3	6	1	5	3	2
Mississippi	#	#	#	#	#	1	1	#	#	#
Missouri	1	1	1	1	#	2	1	2	#	1
Montana	#	#	#	#	#	4	#	4	3	1
Nebraska	3	1	2	2	#	5	1	4	3	1
Nevada	11	4	7	6	1	17	2	14	11	4
New Hampshire	—	—	—	—	—	3	1	2	1	1
New Jersey	—	—	—	—	—	4	1	3	1	3
New Mexico	20	2	18	12	6	29	2	27	18	9
New York	6	3	3	1	2	8	3	4	2	3
North Carolina	3	1	2	1	1	5	1	4	2	2
North Dakota	1	#	1	1	#	4	#	4	3	1
Ohio	#	#	#	#	#	2	1	1	#	1
Oklahoma	5	1	5	3	1	7	1	6	5	1
Oregon	6	1	4	2	2	12	1	11	6	5
Pennsylvania	—	—	—	—	—	3	1	2	1	1
Rhode Island	7	1	6	4	2	10	2	7	4	3
South Carolina	1	1	#	#	#	2	#	2	1	#
South Dakota	—	—	—	—	—	4	#	4	2	2
Tennessee	1	1	1	1	#	1	#	1	1	#
Texas	13	2	11	8	3	16	2	14	10	4
Utah	6	1	5	3	2	12	1	10	8	3
Vermont	#	#	#	#	#	2	#	2	1	1
Virginia	4	2	2	1	1	8	2	6	2	3
Washington	—	—	—	—	—	7	1	6	4	2
West Virginia	#	#	#	#	#	#	#	#	#	#
Wisconsin	5	1	4	2	3	7	1	6	2	3
Wyoming	2	#	2	2	#	4	#	4	3	1
Other jurisdictions										
District of Columbia	6	2	4	2	2	7	1	5	2	3
DoDEA[1]	3	1	2	2	#	6	1	5	4	2

See notes at end of table.

Table A-19. Percentages of all students identified as English language learners, excluded, and assessed, when accommodations were permitted, grade 4 public schools: By state, various years, 2000–2005—Continued

State/jurisdiction	2005				
	Identified	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations
Nation (public)	**10**	**1**	**9**	**7**	**3**
Alabama	2	#	2	1	#
Alaska	19	1	19	11	7
Arizona	20	2	18	14	5
Arkansas	4	2	3	2	1
California	33	3	30	28	2
Colorado	11	1	11	4	7
Connecticut	5	1	4	2	2
Delaware	5	1	3	2	1
Florida	8	1	6	1	5
Georgia	3	1	2	1	1
Hawaii	8	1	7	4	3
Idaho	8	1	8	6	2
Illinois	9	1	9	6	3
Indiana	4	1	3	1	2
Iowa	4	#	4	2	2
Kansas	6	1	5	3	3
Kentucky	1	#	1	#	1
Louisiana	1	#	1	#	#
Maine	1	#	1	1	#
Maryland	4	1	3	1	2
Massachusetts	7	1	6	3	2
Michigan	3	1	3	1	1
Minnesota	7	1	7	4	3
Mississippi	1	#	#	#	#
Missouri	3	#	2	1	1
Montana	3	#	3	2	1
Nebraska	7	1	7	4	3
Nevada	17	1	15	10	5
New Hampshire	3	#	2	2	1
New Jersey	3	1	3	1	1
New Mexico	25	1	24	13	11
New York	6	1	5	1	4
North Carolina	6	1	6	2	4
North Dakota	2	#	1	1	#
Ohio	1	#	1	#	#
Oklahoma	6	1	5	3	2
Oregon	14	1	12	7	5
Pennsylvania	2	#	2	1	1
Rhode Island	7	1	6	2	4
South Carolina	2	#	2	1	#
South Dakota	4	#	3	2	2
Tennessee	2	1	2	1	#
Texas	15	2	13	9	4
Utah	12	1	11	7	4
Vermont	2	#	2	1	1
Virginia	8	1	7	2	5
Washington	9	1	8	5	3
West Virginia	#	#	#	#	#
Wisconsin	6	1	6	2	3
Wyoming	5	#	4	3	1
Other jurisdictions					
District of Columbia	5	1	4	1	2
DoDEA[1]	8	1	7	4	2

— Not available. The jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

The estimate rounds to zero.

[1] Department of Defense Education Activity (overseas and domestic schools). Before 2005, DoDEA overseas and domestic schools were separate jurisdictions in NAEP. Pre-2005 data presented here were recalculated for comparability.

NOTE: Detail may not sum to totals because of rounding. Prior to 2005, students were identified as either English language learners (ELL) or non-ELL; in 2005, students were identified as ELL, non-ELL, or formerly ELL.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 2000–2005 Mathematics Assessments.

Table A-20. Percentages of all students identified as students with disabilities and/or English language learners, excluded, and assessed, when accommodations were permitted, grade 8 public schools: By state, various years, 2000–2005

State/jurisdiction	2000					2003				
	Identified	Excluded	Assessed	Assessed without accom-modations	Assessed with accom-modations	Identified	Excluded	Assessed	Assessed without accom-modations	Assessed with accom-modations
Nation (public)	**14**	**4**	**10**	**7**	**3**	**19**	**4**	**15**	**8**	**7**
Alabama	14	6	8	7	1	14	2	11	9	3
Alaska	—	—	—	—	—	23	1	22	14	8
Arizona	19	3	16	11	4	24	4	20	15	6
Arkansas	14	2	11	8	4	17	2	15	7	8
California	27	4	22	17	5	27	3	25	22	3
Colorado	—	—	—	—	—	15	2	14	5	8
Connecticut	16	6	10	6	4	17	4	13	5	8
Delaware	—	—	—	—	—	18	9	9	3	6
Florida	—	—	—	—	—	19	3	16	5	11
Georgia	11	5	6	3	3	13	2	11	5	6
Hawaii	20	5	15	13	2	20	4	17	8	9
Idaho	14	2	12	8	4	15	1	14	9	5
Illinois	15	5	11	7	3	18	4	14	4	9
Indiana	12	3	9	6	3	15	2	13	6	7
Iowa	—	—	—	—	—	17	2	15	6	9
Kansas	14	3	10	8	3	16	3	13	4	9
Kentucky	14	4	9	5	4	14	4	9	4	5
Louisiana	13	3	10	4	6	16	5	12	2	10
Maine	15	3	12	7	5	17	4	13	5	8
Maryland	13	3	11	7	4	16	4	12	7	5
Massachusetts	19	3	17	8	9	18	3	15	4	11
Michigan	11	4	7	5	2	15	5	10	4	6
Minnesota	15	2	13	11	3	16	2	14	8	6
Mississippi	11	5	5	4	1	9	5	4	3	2
Missouri	15	3	12	5	7	16	4	12	3	9
Montana	12	2	9	6	3	14	2	12	5	6
Nebraska	13	4	10	7	2	16	4	13	7	5
Nevada	16	4	12	8	5	18	2	16	9	6
New Hampshire	—	—	—	—	—	20	3	16	6	10
New Jersey	—	—	—	—	—	18	2	16	2	14
New Mexico	25	7	18	14	4	32	2	30	16	14
New York	16	4	12	5	7	20	5	15	3	12
North Carolina	16	5	11	4	7	18	4	15	3	12
North Dakota	11	2	9	8	2	16	1	14	7	7
Ohio	11	4	7	4	3	13	5	8	3	5
Oklahoma	15	4	11	8	3	19	2	17	10	7
Oregon	17	3	14	8	6	20	3	16	11	6
Pennsylvania	—	—	—	—	—	15	2	14	3	11
Rhode Island	20	3	16	12	4	23	4	20	7	13
South Carolina	13	4	9	7	2	15	7	8	5	4
South Dakota	—	—	—	—	—	13	2	11	6	6
Tennessee	13	2	10	9	1	16	3	13	12	1
Texas	20	8	12	10	2	20	7	13	11	2
Utah	14	3	11	8	3	16	3	14	9	5
Vermont	17	3	14	10	4	18	3	15	7	7
Virginia	15	6	9	5	4	17	7	10	4	6
Washington	—	—	—	—	—	16	2	14	10	5
West Virginia	15	3	12	4	8	16	3	14	5	9
Wisconsin	17	4	13	6	6	17	3	14	3	11
Wyoming	13	1	12	9	3	17	1	15	6	10
Other jurisdictions										
District of Columbia	15	6	9	3	6	20	6	14	5	9
DoDEA [1]	9	1	8	6	2	11	1	10	4	6

See notes at end of table.

Table A-20. Percentages of all students identified as students with disabilities and/or English language learners, excluded, and assessed, when accommodations were permitted, grade 8 public schools: By state, various years, 2000–2005—Continued

State/jurisdiction	2005				
	Identified	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations
Nation (public)	**19**	**4**	**15**	**7**	**8**
Alabama	14	1	13	10	3
Alaska	27	2	25	14	11
Arizona	23	5	18	12	6
Arkansas	15	3	12	5	7
California	28	2	25	21	4
Colorado	17	3	14	5	9
Connecticut	16	3	13	5	9
Delaware	18	11	7	4	3
Florida	21	3	18	4	13
Georgia	14	2	11	4	7
Hawaii	20	3	17	8	9
Idaho	17	2	15	8	7
Illinois	18	3	14	4	11
Indiana	17	4	13	3	10
Iowa	17	3	15	4	10
Kansas	17	4	13	4	9
Kentucky	12	3	9	2	6
Louisiana	15	4	11	1	10
Maine	19	5	14	5	9
Maryland	13	4	9	4	4
Massachusetts	20	6	13	4	10
Michigan	16	4	12	4	8
Minnesota	18	2	15	8	7
Mississippi	10	3	7	3	3
Missouri	15	4	11	3	8
Montana	16	2	14	5	9
Nebraska	16	1	14	6	9
Nevada	19	2	17	10	7
New Hampshire	19	2	17	6	11
New Jersey	18	4	15	2	12
New Mexico	30	3	26	13	13
New York	19	4	15	2	13
North Carolina	17	3	15	3	12
North Dakota	17	4	13	4	8
Ohio	14	6	9	2	7
Oklahoma	20	4	15	7	8
Oregon	19	3	16	9	8
Pennsylvania	16	3	13	3	10
Rhode Island	21	3	18	7	11
South Carolina	15	6	9	5	4
South Dakota	14	2	11	4	7
Tennessee	15	5	11	5	5
Texas	19	6	13	9	4
Utah	17	2	14	6	8
Vermont	19	4	15	7	9
Virginia	18	5	13	5	8
Washington	16	2	13	5	8
West Virginia	17	3	14	6	8
Wisconsin	18	4	13	3	10
Wyoming	17	2	15	5	10
Other jurisdictions					
District of Columbia	19	6	14	2	11
DoDEA [1]	13	2	11	4	7

— Not available. The jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

[1] Department of Defense Education Activity (overseas and domestic schools). Before 2005, DoDEA overseas and domestic schools were separate jurisdictions in NAEP. Pre-2005 data presented here were recalculated for comparability.

NOTE: Detail may not sum to totals because of rounding. Prior to 2005, students were identified as either English language learners (ELL) or non-ELL; in 2005, students were identified as ELL, non-ELL, or formerly ELL.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 2000–2005 Mathematics Assessments.

Table A-21. Percentages of all students identified as students with disabilities, excluded, and assessed, when accommodations were permitted, grade 8 public schools: By state, various years, 2000–2005

State/jurisdiction	2000					2003				
	Identified	Excluded	Assessed	Assessed without accom-modations	Assessed with accom-modations	Identified	Excluded	Assessed	Assessed without accom-modations	Assessed with accom-modations
Nation (public)	**11**	**3**	**7**	**5**	**2**	**14**	**3**	**11**	**5**	**6**
Alabama	14	6	7	7	1	13	2	11	8	3
Alaska	—	—	—	—	—	15	1	14	6	8
Arizona	11	2	9	6	2	11	3	9	4	4
Arkansas	13	2	11	7	4	15	1	13	6	7
California	10	3	7	5	3	11	1	9	7	2
Colorado	—	—	—	—	—	12	1	10	4	7
Connecticut	14	5	9	6	3	14	3	11	4	7
Delaware	—	—	—	—	—	16	8	8	3	5
Florida	—	—	—	—	—	14	2	12	3	9
Georgia	9	4	6	3	3	11	2	10	4	6
Hawaii	15	4	11	10	2	16	3	13	5	8
Idaho	11	2	9	6	3	10	1	10	6	4
Illinois	11	3	8	5	3	15	4	12	3	8
Indiana	11	3	8	5	3	14	2	11	5	6
Iowa	—	—	—	—	—	16	2	14	5	9
Kansas	12	3	9	6	3	13	2	11	3	8
Kentucky	12	4	8	4	4	13	4	9	4	5
Louisiana	12	2	10	4	6	16	4	11	2	9
Maine	14	3	12	7	4	16	4	12	5	7
Maryland	12	2	10	7	4	14	3	10	6	5
Massachusetts	16	2	15	7	8	16	2	14	4	10
Michigan	10	4	7	5	2	13	4	8	3	5
Minnesota	12	1	11	9	2	13	2	11	6	5
Mississippi	10	5	5	4	1	9	5	4	2	2
Missouri	14	3	12	5	7	15	4	12	3	9
Montana	12	2	9	6	3	12	2	10	5	6
Nebraska	11	3	8	6	2	14	3	11	6	5
Nevada	12	3	9	5	4	12	2	10	5	5
New Hampshire	—	—	—	—	—	19	3	15	6	9
New Jersey	—	—	—	—	—	15	1	14	2	12
New Mexico	17	7	10	8	3	20	2	18	8	10
New York	12	3	9	2	6	16	4	12	2	10
North Carolina	14	4	10	3	7	16	3	12	2	10
North Dakota	11	2	9	7	2	14	1	13	6	7
Ohio	11	4	7	4	3	13	5	8	3	5
Oklahoma	13	4	9	7	3	16	2	14	8	6
Oregon	13	2	11	6	5	14	3	12	7	4
Pennsylvania	—	—	—	—	—	14	1	13	2	10
Rhode Island	16	3	14	10	4	20	3	17	5	12
South Carolina	13	4	9	7	2	15	7	8	4	4
South Dakota	—	—	—	—	—	11	2	9	4	5
Tennessee	11	2	9	9	1	14	3	12	11	1
Texas	14	7	7	5	1	15	6	9	8	2
Utah	10	2	8	6	2	11	2	9	5	4
Vermont	16	3	13	9	4	17	3	15	7	7
Virginia	13	5	7	4	4	15	6	9	3	6
Washington	—	—	—	—	—	13	2	11	7	4
West Virginia	14	3	12	4	8	16	3	13	5	9
Wisconsin	15	4	12	6	6	15	3	13	2	10
Wyoming	12	1	11	8	3	15	1	14	4	9
Other jurisdictions										
District of Columbia	11	5	7	2	4	16	5	11	3	8
DoDEA[1]	6	1	5	4	2	8	1	7	1	5

See notes at end of table.

Table A-21. Percentages of all students identified as students with disabilities, excluded, and assessed, when accommodations were permitted, grade 8 public schools: By state, various years, 2000–2005—Continued

State/jurisdiction	2005				
	Identified	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations
Nation (public)	**13**	**3**	**10**	**3**	**7**
Alabama	13	1	12	9	3
Alaska	14	2	12	3	10
Arizona	10	3	7	3	4
Arkansas	14	3	11	5	7
California	9	2	8	4	3
Colorado	10	2	9	2	6
Connecticut	13	2	11	4	7
Delaware	15	10	5	2	3
Florida	16	2	14	3	11
Georgia	12	2	9	3	6
Hawaii	14	2	12	5	7
Idaho	12	2	10	4	6
Illinois	15	3	13	2	10
Indiana	15	4	11	2	9
Iowa	15	2	13	3	10
Kansas	14	3	10	2	8
Kentucky	11	3	8	2	6
Louisiana	14	4	10	1	9
Maine	18	4	14	5	8
Maryland	11	4	7	3	4
Massachusetts	17	6	12	2	9
Michigan	14	4	10	2	7
Minnesota	12	2	10	4	6
Mississippi	9	3	6	3	3
Missouri	14	4	10	2	8
Montana	13	2	11	3	8
Nebraska	13	1	12	4	8
Nevada	11	2	9	4	5
New Hampshire	18	2	16	6	10
New Jersey	16	3	14	2	12
New Mexico	16	2	14	4	9
New York	15	3	12	1	11
North Carolina	14	2	12	2	11
North Dakota	16	4	12	4	8
Ohio	14	5	8	2	7
Oklahoma	16	4	12	5	7
Oregon	13	2	10	4	6
Pennsylvania	15	3	12	3	10
Rhode Island	17	3	15	6	9
South Carolina	14	6	8	4	4
South Dakota	12	2	10	3	6
Tennessee	14	5	10	5	5
Texas	13	5	8	5	3
Utah	11	2	9	3	6
Vermont	18	4	14	6	8
Virginia	15	4	10	3	7
Washington	11	2	9	3	7
West Virginia	17	3	14	6	8
Wisconsin	14	3	11	2	9
Wyoming	14	2	13	3	10
Other jurisdictions					
District of Columbia	17	5	12	2	10
DoDEA[1]	9	1	8	2	5

— Not available. The jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

[1] Department of Defense Education Activity (overseas and domestic schools). Before 2005, DoDEA overseas and domestic schools were separate jurisdictions in NAEP. Pre-2005 data presented here were recalculated for comparability.

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 2000–2005 Mathematics Assessments.

Table A-22. Percentages of all students identified as English language learners, excluded, and assessed, when accommodations were permitted, grade 8 public schools: By state, various years, 2000–2005

State/jurisdiction	2000					2003				
	Identified	Excluded	Assessed	Assessed without accom-modations	Assessed with accom-modations	Identified	Excluded	Assessed	Assessed without accom-modations	Assessed with accom-modations
Nation (public)	**4**	**1**	**3**	**3**	**1**	**6**	**1**	**5**	**4**	**1**
Alabama	1	#	#	#	#	1	#	1	1	#
Alaska	—	—	—	—	—	11	#	11	10	1
Arizona	10	1	8	6	2	16	2	14	12	2
Arkansas	1	#	#	#	#	3	1	2	1	1
California	19	2	17	13	4	20	2	19	17	1
Colorado	—	—	—	—	—	5	1	4	2	2
Connecticut	2	2	1	#	1	4	1	3	1	1
Delaware	—	—	—	—	—	2	1	1	1	1
Florida	—	—	—	—	—	7	1	5	3	3
Georgia	2	1	#	#	#	2	1	2	1	1
Hawaii	6	1	4	4	#	6	1	5	3	2
Idaho	4	1	4	3	1	6	#	5	4	1
Illinois	5	2	3	3	#	4	1	3	1	2
Indiana	1	#	1	1	#	3	#	2	1	1
Iowa	—	—	—	—	—	2	#	2	1	1
Kansas	1	#	1	1	#	4	1	3	1	2
Kentucky	1	1	1	1	#	1	1	1	1	#
Louisiana	1	#	1	#	#	1	1	1	#	#
Maine	#	#	#	#	#	1	#	1	#	#
Maryland	2	1	1	1	#	3	1	2	2	#
Massachusetts	4	2	2	1	1	3	1	2	1	1
Michigan	#	#	#	#	#	3	1	2	1	1
Minnesota	3	1	3	2	#	4	1	3	2	1
Mississippi	#	#	#	#	#	1	#	#	#	#
Missouri	#	#	#	#	#	1	#	1	#	1
Montana	#	#	#	#	#	3	#	2	1	1
Nebraska	2	1	1	1	#	3	1	2	1	#
Nevada	5	1	4	3	#	7	1	6	5	2
New Hampshire	—	—	—	—	—	1	#	1	#	1
New Jersey	—	—	—	—	—	3	1	2	#	2
New Mexico	11	2	9	7	2	20	1	19	11	7
New York	6	2	4	3	1	6	2	4	1	3
North Carolina	2	1	1	1	#	4	1	3	1	2
North Dakota	1	#	1	1	#	2	#	2	1	1
Ohio	2	1	1	#	#	1	#	1	#	#
Oklahoma	2	#	1	1	#	5	1	5	3	1
Oregon	5	1	4	3	1	7	1	6	4	2
Pennsylvania	—	—	—	—	—	2	#	2	1	1
Rhode Island	4	1	3	2	1	5	2	4	2	2
South Carolina	1	#	#	#	#	1	#	1	1	#
South Dakota	—	—	—	—	—	3	#	3	2	1
Tennessee	1	1	1	1	#	3	1	2	2	#
Texas	8	2	6	5	1	8	2	6	5	1
Utah	4	#	3	3	1	7	1	6	5	2
Vermont	1	1	1	#	#	1	#	1	1	#
Virginia	3	1	2	1	1	4	2	2	1	1
Washington	—	—	—	—	—	5	1	4	3	1
West Virginia	#	#	#	#	#	1	#	#	#	#
Wisconsin	2	1	1	1	1	3	1	2	1	1
Wyoming	2	#	2	2	#	3	#	3	2	1
Other jurisdictions										
District of Columbia	4	2	2	1	2	5	1	4	2	2
DoDEA[1]	3	1	2	2	#	5	1	4	2	1

See notes at end of table.

Table A-22. Percentages of all students identified as English language learners, excluded, and assessed, when accommodations were permitted, grade 8 public schools: By state, various years, 2000–2005—Continued

State/jurisdiction	2005				
	Identified	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations
Nation (public)	**6**	**1**	**5**	**4**	**1**
Alabama	1	#	1	1	#
Alaska	15	#	15	11	4
Arizona	14	2	12	10	2
Arkansas	1	1	1	#	#
California	21	1	20	18	2
Colorado	7	1	6	3	3
Connecticut	3	#	3	1	2
Delaware	4	1	2	2	1
Florida	6	1	4	1	3
Georgia	2	#	2	1	1
Hawaii	7	1	6	4	2
Idaho	6	1	6	4	2
Illinois	3	1	2	1	1
Indiana	2	#	2	1	1
Iowa	2	#	2	1	1
Kansas	4	1	3	2	1
Kentucky	1	#	1	#	1
Louisiana	1	#	1	#	1
Maine	1	#	1	#	1
Maryland	2	#	2	1	#
Massachusetts	3	1	2	1	1
Michigan	3	#	2	2	1
Minnesota	7	1	6	5	1
Mississippi	1	#	1	#	#
Missouri	1	#	1	#	1
Montana	5	#	4	2	2
Nebraska	3	#	3	2	1
Nevada	9	1	9	6	2
New Hampshire	1	#	1	#	1
New Jersey	2	1	1	#	1
New Mexico	17	2	15	9	6
New York	5	1	4	1	3
North Carolina	4	1	3	1	2
North Dakota	1	#	1	1	#
Ohio	1	#	1	#	#
Oklahoma	4	1	4	2	1
Oregon	8	1	7	5	3
Pennsylvania	1	#	1	#	#
Rhode Island	5	1	4	2	2
South Carolina	1	#	1	1	#
South Dakota	2	#	2	1	1
Tennessee	1	#	1	1	#
Texas	8	2	6	5	1
Utah	7	1	6	4	2
Vermont	1	#	1	#	#
Virginia	4	1	3	2	1
Washington	5	1	4	3	2
West Virginia	#	#	#	#	#
Wisconsin	4	1	3	1	1
Wyoming	4	#	4	3	1
Other jurisdictions					
District of Columbia	4	1	3	1	2
DoDEA[1]	4	1	4	2	1

— Not available. The jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

The estimate rounds to zero.

[1] Department of Defense Education Activity (overseas and domestic schools). Before 2005, DoDEA overseas and domestic schools were separate jurisdictions in NAEP. Pre-2005 data presented here were recalculated for comparability.

NOTE: Detail may not sum to totals because of rounding. Prior to 2005, students were identified as either English language learners (ELL) or non-ELL; in 2005, students were identified as ELL, non-ELL, or formerly ELL.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 2000–2005 Mathematics Assessments.

Table A-23. Percentages of all students identified as students with disabilities and/or English language learners, excluded, and assessed, grade 4 public schools, by urban district: 2003 and 2005

District	2003					2005				
	Identified	Excluded	Assessed	Assessed without accom-modations	Assessed with accom-modations	Identified	Excluded	Assessed	Assessed without accom-modations	Assessed with accom-modations
SD and/or ELL										
Nation (public)	22	4	18	10	8	23	3	20	10	10
Large central city (public)	†	†	†	†	†	32	4	28	17	11
Atlanta	9	1	8	4	4	11	1	9	3	6
Austin	—	—	—	—	—	37	10	27	12	14
Boston	33	5	28	11	17	33	6	27	11	15
Charlotte	21	4	17	5	12	22	3	19	7	12
Chicago	31	8	23	16	7	29	4	25	15	9
Cleveland	15	7	8	3	5	17	6	12	2	9
District of Columbia	18	4	14	4	10	20	6	14	4	10
Houston	45	8	37	19	18	46	7	38	17	21
Los Angeles	60	3	56	48	8	59	5	54	47	7
New York City	22	6	16	4	12	24	4	19	2	17
San Diego	41	2	38	34	4	43	4	39	33	6
SD only										
Nation (public)	14	3	11	4	7	14	3	11	4	8
Large central city (public)	†	†	†	†	†	13	3	10	3	7
Atlanta	8	1	7	3	4	9	1	8	2	6
Austin	—	—	—	—	—	15	7	8	2	6
Boston	20	3	16	4	12	22	5	17	3	14
Charlotte	17	3	14	3	10	13	2	11	3	8
Chicago	15	5	10	4	6	13	4	10	3	7
Cleveland	12	5	6	2	5	13	5	8	1	8
District of Columbia	13	4	10	2	7	16	5	11	2	8
Houston	18	7	11	8	3	12	5	7	3	4
Los Angeles	11	2	9	5	4	11	3	8	3	5
New York City	12	1	12	1	10	14	2	11	1	11
San Diego	11	1	10	7	3	11	2	9	4	4
ELL only										
Nation (public)	11	1	9	7	2	10	1	9	7	3
Large central city (public)	†	†	†	†	†	21	2	19	14	5
Atlanta	2	#	2	1	#	2	#	2	1	1
Austin	—	—	—	—	—	25	5	20	11	9
Boston	18	3	15	8	7	15	3	12	9	3
Charlotte	8	2	6	2	4	10	1	8	4	4
Chicago	20	5	15	13	2	18	2	16	12	4
Cleveland	4	1	2	1	1	4	1	3	2	2
District of Columbia	7	1	5	2	3	5	1	4	1	2
Houston	35	4	31	14	17	37	4	33	15	18
Los Angeles	56	2	53	47	6	54	4	50	45	5
New York City	13	6	7	3	4	12	3	9	1	8
San Diego	34	2	32	30	2	36	3	33	30	3

— Not available. The district did not participate in 2003.

† Not applicable. Data for large central city schools are not included for years prior to 2005 because definitions of the types of location have changed.

The estimate rounds to zero.

NOTE: SD = Students with disabilities. ELL = English language learners. Students identified as both SD and ELL were counted only once under the combined SD and/or ELL category, but were counted separately under the SD and ELL categories. Prior to 2005, students were identified as either ELL or non-ELL; in 2005, students were identified as ELL, non-ELL, or formerly ELL. For 2005, "large central city" includes nationally representative public schools located in large central cities (population of 250,000 or more) within a Metropolitan Statistical Area (MSA). Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 and 2005 Trial Urban District Mathematics Assessments.

Table A-24. Percentages of all students identified as students with disabilities and/or English language learners, excluded, and assessed, grade 8 public schools, by urban district: 2003 and 2005

District	2003					2005				
	Identified	Excluded	Assessed	Assessed without accom-modations	Assessed with accom-modations	Identified	Excluded	Assessed	Assessed without accom-modations	Assessed with accom-modations
SD and/or ELL										
Nation (public)	19	4	15	8	7	19	4	15	7	8
Large central city (public)	†	†	†	†	†	24	4	20	12	8
Atlanta	11	2	9	4	5	12	1	10	3	8
Austin	—	—	—	—	—	26	10	16	12	4
Boston	31	7	24	9	15	25	9	16	7	9
Charlotte	18	3	14	5	9	18	3	15	5	10
Chicago	22	7	15	8	7	21	3	18	5	12
Cleveland	21	9	12	2	9	20	9	12	3	9
District of Columbia	20	6	14	5	9	19	6	14	2	11
Houston	26	8	18	16	3	24	6	18	14	4
Los Angeles	37	2	35	29	6	39	3	36	30	6
New York City	24	5	19	6	14	20	2	18	2	16
San Diego	29	4	26	22	4	28	4	24	17	7
SD only										
Nation (public)	14	3	11	5	6	13	3	10	3	7
Large central city (public)	†	†	†	†	†	13	3	10	3	6
Atlanta	10	1	9	4	5	11	1	9	3	7
Austin	—	—	—	—	—	14	8	6	5	2
Boston	24	4	20	7	13	18	7	11	3	8
Charlotte	14	3	12	4	8	12	2	10	2	8
Chicago	17	5	12	6	7	16	2	14	3	11
Cleveland	17	9	8	1	6	18	8	9	3	7
District of Columbia	16	5	11	3	8	17	5	12	2	10
Houston	16	7	10	9	#	11	4	7	5	2
Los Angeles	12	2	10	5	5	12	2	10	5	5
New York City	15	2	13	3	10	12	1	11	1	10
San Diego	11	1	10	7	3	11	3	8	4	4
ELL only										
Nation (public)	6	1	5	4	1	6	1	5	4	1
Large central city (public)	†	†	†	†	†	13	2	12	9	3
Atlanta	2	1	1	1	#	1	#	1	#	1
Austin	—	—	—	—	—	14	4	10	8	2
Boston	13	5	8	4	4	10	4	6	5	1
Charlotte	7	1	6	3	3	7	1	6	4	2
Chicago	8	3	5	3	2	6	2	5	2	2
Cleveland	5	1	4	1	3	3	1	2	#	2
District of Columbia	5	1	4	2	2	4	1	3	1	2
Houston	16	5	11	9	2	15	3	12	10	3
Los Angeles	33	2	31	27	4	34	2	32	28	4
New York City	13	4	9	3	6	10	2	9	2	7
San Diego	23	3	20	18	2	21	3	18	14	4

— Not available. The district did not participate in 2003.

† Not applicable. Data for large central city schools are not included for years prior to 2005 because definitions of the types of location have changed.

The estimate rounds to zero.

NOTE: SD = Students with disabilities. ELL = English language learners. Students identified as both SD and ELL were counted only once under the combined SD and/or ELL category, but were counted separately under the SD and ELL categories. Prior to 2005, students were identified as either ELL or non-ELL; in 2005, students were identified as ELL, non-ELL, or formerly ELL. For 2005, "large central city" includes nationally representative public schools located in large central cities (population of 250,000 or more) within a Metropolitan Statistical Area (MSA). Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 and 2005 Trial Urban District Mathematics Assessments.

Investigating the Potential Effects of Exclusion Rates on Assessment Results

Variation in the rates of exclusion of students with disabilities and English language learners (ELL) introduces validity concerns for comparisons over time and between jurisdictions. The essential problem is the differential representativeness of samples, which could impact the comparability of cross-state comparisons within a given year and state trends across years. Because students with disabilities and English language learners tend to score below average on assessments, excluding such students may increase a jurisdiction's scores. Conversely, including more of these students might depress scores. In 2005, exclusion rates varied among jurisdictions. In addition, cases of both increases and decreases in exclusion rates occurred between 2000 and 2005, making comparisons over time within jurisdictions complex to interpret. Tables A-17 and A-20 on the preceding pages display the rates of exclusion in 2003 and 2005 in each jurisdiction for grade 4 and grade 8, respectively.

As shown in table A-17, of the 52 jurisdictions that participated in the mathematics assessment at grade 4 in 2005, three jurisdictions had exclusion rates of 6 percent or greater, while the majority had exclusion rates of less than 6 percent. Table A-20 displays the corresponding data for grade 8. Of the 52 jurisdictions in which mathematics was assessed at grade 8 in 2005, six jurisdictions had exclusion rates of 6 percent or above, and one of these had an exclusion rate of 11 percent.

One factor that contributed to the variability in exclusion rates across states is that the percentage of students who are *identified* as having disabilities or as English language learners varies across jurisdictions. Reasons for the variation include lack of standardized criteria for defining students as having specific disabilities or as ELL, and changes or differences in policy and practices regarding implementation of the Individuals with Disabilities Education Act (IDEA).

Types of Accommodations Permitted

Table A-25 displays the percentages of SD/ELL students assessed with the available accommodations. It should be noted that students assessed with accommodations typically received some combination of accommodations. The numbers and percentages presented in the table reflect only the primary accommodation provided. For example, students assessed in small groups (as compared with standard NAEP sessions of about 30 students) usually received extended time. Here, the primary accommodation coded would be small groups. In one-on-one administrations, students often received assistance in recording answers (e.g., use of a scribe or computer) and were afforded extra time. Extended time was considered the primary accommodation only when it was the sole accommodation provided.

Table A-25. Percentages of assessed students identified as students with disabilities and/or English language learners assessed with accommodations, by type of primary accommodation, grades 4, 8, and 12, public and nonpublic schools: Various years, 1996–2005

	Grade 4				Grade 8				Grade 12
Accommodation	1996	2000	2003	2005	1996	2000	2003	2005	2005
SD and/or ELL									
Bilingual book	1.39	0.78	0.77	0.54	0.41	0.45	0.26	0.18	#
Bilingual dictionary	#	#	0.02	0.04	0.02	#	0.06	0.08	0.09
Large-print book	#	0.03	0.05	0.03	0.04	#	0.03	0.03	0.01
Extended time	0.82	0.62	0.94	1.28	0.66	0.53	1.53	1.67	1.61
Read aloud	0.37	0.35	0.67	0.36	0.14	0.24	0.29	0.32	0.17
Small group	1.62	2.43	5.15	6.22	1.01	1.62	4.17	5.03	2.81
One-on-one	0.87	0.43	0.32	0.43	0.36	0.1	0.15	0.22	0.23
Scribe/computer	—	0.04	0.17	0.13	—	#	0.07	0.04	#
Breaks	—	—	—	0.03	—	—	—	0.03	0.02
Magnifying device	—	—	—	#	—	—	—	#	#
School staff administers	—	—	—	0.23	—	—	—	0.14	0.08
Other	0.02	#	0.08	0.08	0.08	0.08	0.07	0.04	0.05
SD only									
Bilingual book	0.03	#	0.06	0.03	#	#	0.02	0.01	#
Bilingual dictionary	#	#	0.01	#	#	#	0.01	0.01	#
Large-print book	#	0.03	0.05	0.03	0.04	#	0.03	0.03	0.01
Extended time	0.82	0.58	0.73	0.84	0.66	0.44	1.39	1.33	1.39
Read aloud	0.37	0.33	0.5	0.28	0.14	0.23	0.27	0.27	0.15
Small group	1.62	2.26	4.69	5.36	1.01	1.57	3.93	4.68	2.54
One-on-one	0.87	0.41	0.32	0.41	0.36	0.09	0.14	0.2	0.23
Scribe/computer	—	0.04	0.17	0.12	—	#	0.06	0.04	#
Breaks	—	—	—	0.02	—	—	—	0.03	0.02
Magnifying device	—	—	—	#	—	—	—	#	#
School staff administers	—	—	—	0.21	—	—	—	0.14	0.07
Other	0.02	#	0.07	0.05	0.08	0.07	0.06	0.04	0.03
ELL only									
Bilingual book	1.39	0.78	0.77	0.54	0.41	0.45	0.26	0.18	#
Bilingual dictionary	#	#	0.02	0.04	0.02	#	0.06	0.08	0.09
Large-print book	#	#	#	#	#	#	#	#	#
Extended time	0.10	0.06	0.3	0.51	0.01	0.1	0.27	0.43	0.28
Read aloud	0.03	0.02	0.22	0.11	0.06	0.03	0.05	0.07	0.03
Small group	0.15	0.31	0.91	1.22	#	0.09	0.47	0.56	0.33
One-on-one	0.09	0.02	0.04	0.05	0.01	0.01	0.01	0.03	0.01
Scribe/computer	—	#	0.01	0.01	—	#	#	#	#
Breaks	—	—	—	0.01	—	—	—	#	#
Magnifying device	—	—	—	#	—	—	—	#	#
School staff administers	—	—	—	0.03	—	—	—	0.01	0.01
Other	#	#	0.01	0.03	#	0.01	0.01	0.01	0.01

— Not available.

The estimate rounds to less than 0.01.

NOTE: SD = students with disabilities. ELL = English language learners. Students identified as both SD and ELL were counted only once under the combined SD and/or ELL category, but were counted separately under the SD and ELL categories. Prior to 2005, students were identified as either ELL or non-ELL; in 2005, students were identified as ELL, non-ELL, or formerly ELL.

Results from previous mathematics assessments at grade 12 are not reported with the results from 2005 because of a change in the framework.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1996–2005 Mathematics Assessments.

Data Collection and Scoring

The NAEP 2005 mathematics assessment was conducted from January to March 2005 by contractors to the U.S. Department of Education. Trained field staff from Westat conducted the data collection. Materials from the 2005 assessment were shipped to Pearson Educational Measurement, where the test booklets were scanned and the multiple-choice items were machine scored. Trained staff evaluated the responses to the constructed-response questions using scoring rubrics or guides prepared by Educational Testing Service (ETS). Each constructed-response question had a unique scoring guide that defined the criteria used to evaluate students' responses. The extended constructed-response questions were evaluated with five-level scoring guides. Some short constructed-response questions were rated according to three- or four-level guides that permitted partial credit. Other short constructed-response questions were scored as either correct or incorrect.

For the 2005 mathematics assessment, 4,435,831 student-constructed responses were scored. This number includes rescoring to monitor interrater reliability. The average percentage of exact agreement between graders of the same student responses for the 2005 national reliability sample was 97 percent at the fourth grade and 96 percent at the eighth grade.

Data Analysis and IRT Scaling

After the professional scoring, all information was transcribed into the NAEP database at ETS. Each processing activity was conducted with rigorous quality control. After the assessment information was compiled in the database, the data were weighted according to the population structure. The weighting for the national and state samples reflected the probability of selection for each student as a result of the sampling design, adjusted for nonresponse.[8]

Analyses were then conducted to determine the percentages of students who gave various responses to each cognitive and background question. In determining these percentages for the cognitive questions, a distinction was made between missing responses at the end of a block (i.e., missing responses after the last question the student answered) and missing responses before the last observed response. Missing responses before the last observed response were considered intentional omissions. In analysis, omitted responses to multiple-choice items were scored as fractionally correct.[9] Omitted responses for constructed-response items were placed into the lowest score category. Missing responses after the last observed response were considered "not reached" and treated as if the questions had not been presented to the student. In calculating response percentages for each question, only students classified as having been presented the question were included in the denominator of the statistic.

It is standard NAEP practice to treat all nonrespondents to the last question in a block as if they had not reached the question. For multiple-choice and short constructed-response questions, this practice produces a reasonable pattern of results in that the proportion reaching the last question is not dramatically smaller than the proportion reaching the next-to-last question. However, for mathematics blocks that ended with extended constructed-response questions, there may be extremely large drops in the proportion of students attempting some of the final questions. Therefore, for blocks ending with an extended constructed-response question, students who answered the next-to-last question, but did not respond to the extended constructed-response question, were classified as having intentionally omitted the last question.

Item Response Theory (IRT) was used to estimate average mathematics scale scores for the nation and for various subgroups of interest within the nation. IRT models the probability of answering a question in a certain way as a mathematical function of proficiency or skill. The main purpose of IRT analysis is to provide a common scale on which performance can be compared among groups, such as those defined by characteristics, including gender and race/ethnicity, even when students receive different blocks of items. One desirable feature of IRT is that it locates items and students on this common scale. In contrast to classical test theory, IRT does not rely solely on the total number of correct item responses, but uses the particular patterns of student responses to items in determining the student location on the scale. As a result, adding items that function at a particular point on the scale to the assessment does not change the location of the students on the scale, even though students may respond correctly to more items. It does increase the relative precision with which students are measured, particularly those students whose scale locations are close to the additional items.

The results for 1990, 1992, 1996, 2000, 2003, and 2005 are presented on the NAEP mathematics composite scale. For the NAEP mathematics assessment, a scale ranging from 0 to 500 was used to report performance in each of the five mathematics content areas at each grade: number properties and operations; measurement; geometry; data analysis and probability; and algebra. The scales summarize student performance across all three types of questions in the assessment (multiple-choice, short constructed-response, and extended constructed-response).

In producing these content-area scales, three distinct IRT models were used. Multiple-choice questions were scaled using the three-parameter logistic (3PL) model; short constructed-response questions rated as acceptable or unacceptable were scaled using the two-parameter logistic (2PL) model; and short constructed-response questions rated according to a three-level guide, as well as extended constructed-response questions rated on a four- or five-level guide, were scaled using a generalized partial-credit (GPC) model.[10] Developed by ETS and first used in 1992, the GPC model permits the scaling of questions scored according to multipoint rating schemes. The model takes full advantage of the information available from each of the student response categories used for these more complex constructed-response questions.[11]

The scales are composed of three types of questions: multiple-choice, short constructed-response (scored either dichotomously or allowing for partial credit), and extended constructed-response (scored according to a partial-credit model). Unfortunately, the question of how much information different types of questions contribute to a scale has no simple answer. The information provided by a given question is determined by the IRT model used to scale the question. It is a function of the item parameters and varies by level of mathematics proficiency.[12] Thus, the answer to the query, "How much information do the different types of questions provide?" will differ for each level of mathematics performance. When considering the composite mathematics scale, the answer is even more complicated. The mathematics data are scaled separately by the content areas. The composite scale is a weighted combination of these subscales. IRT information functions are only strictly comparable when they are derived from the same calibration. Because the composite scale is based on five separate calibrations, the information provided by individual questions or question types on the composite scale cannot be compared.

Because the NAEP design gives each student a small proportion of the pool of assessment items, the assessment cannot provide reliable information about individual performance. Traditional test scores for individual students, even those based on IRT, would result in misleading estimates of population characteristics, such as subgroup means and percentages of students at or above a certain scale-score level. However, it is NAEP's goal to estimate these population characteristics. NAEP's objectives can be achieved with methodologies that produce estimates of the population-level parameters directly, without the intermediary computation of estimates of individuals. This is accomplished using marginal estimation scaling model techniques for latent variables.[13] Under the assumptions of the scaling models, these population estimates will be consistent in the sense that the estimates approach the model-based population values as the sample size increases. This would not be the case for population estimates obtained by aggregating optimal estimates of individual performance.[14]

Item-Mapping Procedures

The mathematics performance of fourth- and eighth-graders can be illustrated by "item maps," which position question or "item" descriptions along the NAEP mathematics scale at each grade. Item maps are included in the national report cards, but not the individual state reports. Each question shown is placed at the point on the scale where students are more likely to give successful responses to it. The descriptions used on these item maps focus on the mathematics knowledge or skill needed to respond successfully to the question. For multiple-choice questions, the description indicates the knowledge or skill demonstrated by selection of the correct option; for constructed-response questions, the description takes into account the knowledge or skill specified by the different levels of scoring criteria for that question.

To map questions to particular points on the NAEP mathematics scale, a response-probability convention was adopted to divide those who had a higher probability of success from those who had a lower probability. Choosing a response-probability convention has an impact on the mapping of the test questions onto the mathematics scale. A lower boundary convention maps the mathematics questions at lower points along the scale, and a higher boundary convention maps the same questions at higher points on the scale. The underlying distribution of mathematics skills in the population does not change, but the choice of a response-probability convention does have an impact on the proportion of the student population that is reported as "able to do" the questions on the mathematics scales.

There is no obvious choice of a point along the probability scale that is clearly superior to any other point. If the convention were set with a boundary at 50 percent, those above the boundary would be more likely to get a question right than get it wrong, while those below the boundary would be more likely to get the question wrong than right. Although this convention has some intuitive appeal, it was rejected on the grounds that having a 50:50 chance of getting the question right shows an insufficient degree of mastery. If the convention were set with a boundary at 80 percent, students above the criterion would have a high probability of responding successfully to a question. However, many students below this criterion show some level of mathematics ability that would be ignored by such a stringent criterion. In particular, those in the range between 50 and 80 percent correct would be more likely to get the question right, yet would not be in the group described as "able to do" the question.

In a compromise between the 50 percent and the 80 percent conventions, NAEP has adopted two related response-probability conventions for all its subjects: 65 percent for constructed-response questions (where guessing is not a factor), and 74 percent for multiple-choice questions with four response options (to adjust for the possibility of answering correctly by guessing) or 72 percent for five response options (to correct for the possibility of answering correctly by guessing, with slightly less correction applied when students were presented with five rather than four options). These response-probability conventions were established, in part, based on an intuitive judgment that they would provide the best picture of students' mathematics skills.

Some additional support for the dual conventions adopted by NAEP was provided by Huynh.[15] He examined the IRT information provided by items, according to the IRT model used in scaling NAEP questions. Following Bock, Huynh decomposed the item information into that provided by a correct response $[P(\theta)\, I(\theta)]$ and that provided by an incorrect response $[(1- P(\theta))\, I(\theta)]$.[16] Huynh showed that the item information provided by a correct response to a constructed-response item is maximized at the point along the mathematics scale at which the probability of a correct response is 0.65 (for multiple-choice items, the information provided by a correct response is maximized at the point at which the probability of getting the item correct is 0.72 or 0.74). It should be noted, however, that maximizing the item information $I(\theta)$, rather than the information provided by a correct response $[P(\theta)\, I(\theta)]$, would imply an item-mapping criterion closer to 50 percent.

The NAEP mathematics achievement results are presented in terms of the composite mathematics scale. However, the mathematics assessment was scaled separately for the five content areas at grades 4 and 8. The composite scale is a weighted combination of the five subscales for the five content areas. To obtain item map information, a procedure developed by Donoghue was used.[17] This method models the relationship between the item response function for the subscale and the subscale structure to derive the relationship between the item score and the composite scale (i.e., an item response function for the composite scale). This item response function is then used to derive the probability used in the mapping.

Weighting and Variance Estimation

A complex sampling design was used to select the students who were assessed. The properties of a sample selected through such a design can be very different from those of a simple random sample in which every student in the target population has an equal chance of selection and in which the observations from different sampled students can be considered to be statistically independent of one another. Therefore, the properties of the sample for the data collection design were taken into account during the analysis of the assessment data.

One way that the properties of the sample design were addressed was by using sampling weights to account for the fact that the probabilities of selection were not identical for all students. All population and subpopulation characteristics based on the assessment data were estimated using sampling weights. These weights included adjustments for school and student nonresponse.

Prior to 2003, the national samples used weights that had been poststratified to the U.S. Census or Current Population Survey (CPS) totals for the populations being assessed. Due to concerns about the availability of appropriate targets for poststratification as a result of changes in the reporting of race in the 2000 Census, nonpoststratified weights have been used in the analysis of national samples since 2003. The state NAEP samples have always been analyzed using nonpoststratified weights, since there were no targets available from CPS to use in poststratification.

Not only must appropriate estimates of population characteristics be derived, but appropriate measures of the degree of uncertainty must be obtained for those statistics. Two components of uncertainty are accounted for in the variability of statistics based on student ability: the uncertainty due to sampling only a relatively small number of students, and the uncertainty due to sampling only a portion of the cognitive domain of interest. The first component accounts for the variability associated with the estimated percentages of students who had certain background characteristics or who answered a certain cognitive question correctly.

Because NAEP uses complex sampling procedures, conventional formulas for estimating sampling variability that assume simple random sampling are inappropriate. NAEP uses a jackknife replication procedure to estimate standard errors. The jackknife standard error provides a reasonable measure of uncertainty for any student information that can be observed without error. However, because each student typically responds to only a few questions within any mathematics content area, the scale score for any single student would be imprecise. In this case, NAEP's marginal estimation methodology can be used to describe the performance of groups and subgroups of students. The estimate of the variance of the students' posterior scale score distributions (which reflect the imprecision due to lack of measurement accuracy) is computed. This component of variability is then included in the standard errors of NAEP scale scores.[18]

In some circumstances, it is not possible to obtain appropriate estimates of standard errors, and the accuracy of the statistic being estimated may then be called into question. In the case of extreme percentages, close to 100 or 0, for student group percentages and percentages at or above achievement levels, the standard error may have unknown accuracy or be undefined. In such cases, tables of NAEP results in the NAEP Data Explorer software tool display the symbol *** in place of the standard error, and provide the notation: Standard error cannot be determined.

When a standard error is based on a small number of students, or the group of students is enrolled in a small number of schools, the amount of uncertainty associated with the estimation of the standard error may be quite large, and the accuracy of both the standard error and the estimate of the statistic are compromised. Two indicators are used for these situations: the "rule of five" and the coefficient of variation of the denominator of the estimator. The rule of five requires that estimates of statistics be based on at least five sampling units (e.g., schools). The coefficient of variation quantifies the standard error of the sample relative to the sample size. The relative size of the standard error should not exceed 20 percent. If these requirements are not met, tables of NAEP results insert the symbol ‡ in place of both the statistic and its standard error, and provide the notation: Reporting standards not met.

The symbol ‡ and its accompanying notation are also used in other instances. For example, it is used when the sample size falls below the minimum of 62 students needed to ensure enough power to detect certain effects, and when response rates fall below certain levels. However, these instances are largely unrelated to concerns about weighting or variance estimation.

The reader is reminded that, as with findings from all surveys, NAEP results are subject to other kinds of error, including the effects of imperfect adjustment for student and school nonresponse and unknowable effects associated with the particular instrumentation and data collection methods. Nonsampling errors can be attributed to a number of sources—inability to obtain complete information about all selected schools in the sample (some students or schools refused to participate, or students participated but answered only certain questions); ambiguous definitions; differences in interpreting questions; inability or unwillingness to give correct background information; mistakes in recording, coding, or scoring data; and other errors in collecting, processing, sampling, and estimating missing data. The extent of nonsampling errors is difficult to estimate and, because of their nature, the impact of such errors cannot be reflected in the data-based estimates of uncertainty provided in NAEP reports.

Drawing Inferences From the Results

The reported statistics are estimates and are therefore subject to a measure of uncertainty. There are two sources of such uncertainty. First, NAEP uses a sample of students rather than testing all students. Second, all assessments have some amount of uncertainty related to the fact that they cannot ask all questions that might be asked in a content area. The magnitude of this uncertainty is reflected in the standard error of each of the estimates. When the percentages or average scale scores of certain groups are compared, the estimated standard error should be taken into account. Therefore, the comparisons are based on statistical tests that consider the estimated standard errors of those statistics and the magnitude of the difference among the averages or percentages.

For the data in this report, all the estimates have corresponding estimated standard errors of the estimates. For example, tables A-26 and A-27 show the average national scale score for the NAEP 1990–2005 national assessments and the percentage of students within each achievement-level range and at or above achievement levels. In both tables, estimated standard errors appear in parentheses next to each estimated scale score or percentage. For the estimated standard errors corresponding to other data from this report, the reader can consult the data exploration tool on the NCES web site (http://nces.ed.gov/nationsreportcard/naepdata/).

Using confidence intervals based on the standard errors provides a way to take into account the uncertainty associated with sample estimates and to make inferences about the population averages and percentages in a manner that reflects that uncertainty. An estimated sample average scale score plus or minus 1.96 standard errors approximates a 95 percent confidence interval for the corresponding population quantity. This statement means that one can conclude with an approximately 95 percent level of confidence that the average performance of the entire population of interest (e.g., all fourth-grade students in public and nonpublic schools) is within plus or minus 1.96 standard errors of the sample average.

For example, suppose that the average mathematics scale score of the students in a particular group was 256 with an estimated standard error of 1.2. An approximately 95 percent confidence interval for the population quantity would be as follows:

$$\text{Average} \pm 1.96 \text{ standard errors}$$

$$= 256 \pm 1.96 \times 1.2$$

$$= 256 \pm 2.4$$

Therefore, the 95% confidence interval is bounded by: (253.6, 258.4).

Thus, one can conclude with a 95 percent level of confidence that the average scale score for the entire population of students in that group is between 253.6 and 258.4. It should be noted that this example and the examples in the following sections are illustrative. More precise estimates carried out to one or more decimal places are used in the actual analyses.

Similar symmetric confidence intervals can be constructed for percentages, if the percentages are not extremely large or small. For extreme percentages a symmetric interval based on a normal distribution is not appropriate and the common standard error calculation is possibly problematic. Standard errors of extreme percentages should be interpreted with caution.

Table A-26. Average mathematics scale scores and standard errors, grades 4 and 8: Various years, 1990–2005

	Accommodations not permitted			Accommodations permitted			
Grade	1990	1992	1996	1996	2000	2003	2005
Grade 4	213 (0.9) *	220 (0.7) *	224 (0.9) *	224 (1.0) *	226 (0.9) *	235 (0.2) *	238 (0.1)
Grade 8	263 (1.3) *	268 (0.9) *	272 (1.1) *	270 (0.9) *	273 (0.8) *	278 (0.3) *	279 (0.2)

* Significantly different from 2005.

NOTE: Standard errors of the estimated scale scores appear in parentheses. NAEP sample sizes have increased in 2003 and 2005 compared to previous years, resulting in smaller detectable differences than in previous assessments.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1990–2005 Mathematics Assessments.

Table A-27. Percentage of students, by mathematics achievement level, grades 4 and 8: Various years, 1990–2005

Grade	Below ***Basic***	At ***Basic***	At ***Proficient***	At ***Advanced***	At or above ***Basic***	At or above ***Proficient***
Grade 4						
Accommodations not permitted						
1990	50 (1.4) *	37 (1.5) *	12 (1.1) *	1 (0.4) *	50 (1.4) *	13 (1.2) *
1992	41 (1.0) *	41 (1.0) *	16 (1.0) *	2 (0.3) *	59 (1.0) *	18 (1.0) *
1996	36 (1.2) *	43 (0.9)	19 (0.8) *	2 (0.3) *	64 (1.2) *	21 (0.9) *
Accommodations permitted						
1996	37 (1.3) *	43 (1.0)	19 (0.9) *	2 (0.3) *	63 (1.3) *	21 (1.1) *
2000	35 (1.3) *	42 (1.1) *	21 (0.9) *	3 (0.3) *	65 (1.3) *	24 (1.0) *
2003	23 (0.3) *	45 (0.3) *	29 (0.3) *	4 (0.1) *	77 (0.3) *	32 (0.3) *
2005	20 (0.2)	44 (0.2)	31 (0.2)	5 (0.1)	80 (0.2)	36 (0.2)
Grade 8						
Accommodations not permitted						
1990	48 (1.4) *	37 (1.1) *	13 (1.0) *	2 (0.3) *	52 (1.4) *	15 (1.1) *
1992	42 (1.1) *	37 (0.8) *	18 (0.8) *	3 (0.4) *	58 (1.1) *	21 (1.0) *
1996	38 (1.1) *	39 (1.0)	20 (0.8) *	4 (0.5) *	62 (1.1) *	24 (1.1) *
Accommodations permitted						
1996	39 (1.0) *	38 (0.9)	20 (0.9) *	4 (0.4) *	61 (1.0) *	23 (1.0) *
2000	37 (0.9) *	38 (0.7) *	21 (0.6) *	5 (0.4) *	63 (0.9) *	26 (0.8) *
2003	32 (0.3) *	39 (0.2)	23 (0.2)	5 (0.1) *	68 (0.3) *	29 (0.3) *
2005	31 (0.2)	39 (0.2)	24 (0.2)	6 (0.1)	69 (0.2)	30 (0.2)

* Significantly different from 2005.

NOTE: Standard errors of the estimated percentages appear in parentheses. Detail may not sum to totals because of rounding. NAEP sample sizes have increased in 2003 and 2005 compared to previous years, resulting in smaller detectable differences than in previous assessments.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1990–2005 Mathematics Assessments.

Analyzing Group Differences in Averages and Percentages

Statistical tests determine whether, based on the data from the groups in the sample, there is strong enough evidence to conclude that the averages or percentages are actually different for those groups in the population. If the evidence is strong (i.e., the difference is statistically significant), the report describes the group averages or percentages as being different (e.g., one group performed higher or lower than another group), regardless of whether the sample averages or percentages appear to be approximately the same. The reader is cautioned to rely on the results of the statistical tests rather than on the apparent magnitude of the difference between sample averages or percentages when determining whether the sample differences are likely to represent actual differences among the groups in the population.

To determine whether a real difference exists between the average scale scores (or percentages of a certain attribute) for two groups in the population, one needs to obtain an estimate of the degree of uncertainty associated with the difference between the averages (or percentages) of these groups for the sample. This estimate of the degree of uncertainty, called the "standard error of the difference" between the groups, is obtained by taking the square of each group's standard error, summing the squared standard errors, and taking the square root of that sum.

$$\text{Standard Error of the Difference} = SE_{A-B} = \sqrt{(SE_A^2 + SE_B^2)}$$

The standard error of the difference can be used, just like the standard error for an individual group average or percentage, to help determine whether differences among groups in the population are real. The difference between the averages or percentages of the two groups plus or minus 1.96 standard errors of the difference represents an approximately 95 percent confidence interval. If the resulting interval includes zero, there is insufficient evidence to claim a real difference between the groups in the population. If the interval does not contain zero, the difference between the groups is statistically significant at the .05 level.

The following example of comparing groups addresses the problem of determining whether the average mathematics scale score of group A is higher than that of group B. The sample estimates of the average scale scores and estimated standard errors are as follows:

Group	Average Scale Score	Standard Error
A	218	0.9
B	216	1.1

The difference between the estimates of the average scale scores of groups A and B is two points (218–216). The standard error of this difference is

$$\sqrt{(0.9^2 + 1.1^2)} = 1.4$$

Thus, an approximately 95 percent confidence interval for this difference is plus or minus 1.96 standard errors of the difference:

$$2 \pm 1.96 \times 1.4$$

$$2 \pm 2.7$$

$$(-0.7, 4.7)$$

The value zero is within the confidence interval; therefore, there is insufficient evidence to conclude that group A performed statistically different from group B.

The procedure above is appropriate to use when it is reasonable to assume that the groups being compared have been independently sampled for the assessment. Such an assumption is clearly warranted when comparing results across assessment years (e.g., comparing the 2003 and 2005 results for a particular state or student group) or when comparing results for one state with another. This is the approach used for NAEP reports when comparisons involving independent groups are made. The assumption of independence is violated to some degree when comparing group results for the nation or a particular state (e.g., comparing national 2005 results for males and females), since these samples of students have been drawn from the same schools. When the groups being compared do not share students (as is the case, for example, comparing males and females) the impact of this violation of the independence assumption on the outcome of the statistical tests is assumed to be small, and NAEP, by convention, has, for computational convenience, routinely applied the procedures described above to those cases as well.

When making comparisons of results for groups that share a considerable proportion of students in common, it is not appropriate to ignore such dependencies. In such cases, NAEP has used procedures appropriate to comparing dependent groups. When the dependence in group results is due to the overlap in samples (e.g., when a subgroup is being compared to a total group), a simple modification of the usual standard error of the difference formula can be used. The formula for such cases is

$$SE_{Total-Subgroup} = \sqrt{(SE_{Total}^2 + SE_{Subgroup}^2 - 2pSE_{Subgroup}^2)}$$

where p is the proportion of the total group contained in the subgroup.[19] This formula was used for this report when a state was compared to the aggregate nation.

Conducting Multiple Tests

The procedures used to determine whether group differences in the samples represent actual differences among the groups in the population and the certainty ascribed to intervals (e.g., a 95 percent confidence interval) are based on statistical theory that assumes that only one confidence interval or test of statistical significance is being performed. However, there are times when many different groups are being compared (i.e., multiple sets of confidence intervals are being analyzed). In sets of confidence intervals, statistical theory indicates that the certainty associated with the entire set of intervals is less than that attributable to each individual comparison from the set. To hold the significance level for the set of comparisons at a particular level (e.g., .05), the standard methods must be adjusted by multiple comparison procedures.[20] One such procedure, the Benjamini-Hochberg False Discovery Rate (FDR) procedure, was used to control the certainty level.[21]

Unlike other multiple comparison procedures that control the familywise error rate (i.e., the probability of making even one false rejection in the set of comparisons), the FDR procedure controls the expected proportion of falsely rejected hypotheses. (A "family" in this context is the number of categories to be compared for a given variable. This might be six within the race/ethnicity variable or 50 when considering states.) Furthermore, the FDR procedure used in NAEP is considered appropriately less conservative than familywise procedures for large families of comparisons.[22] Therefore, the FDR procedure is more suitable for multiple comparisons in NAEP than are other procedures.

To illustrate how the FDR procedure is used, consider the comparisons of current and previous years' average scale scores for the five groups presented in table A-28. The test statistic shown is the difference in average scale scores divided by the estimated standard error of the difference. (Rounding of the data occurs after the test is done.)

Table A-28. Example of False Discovery Rate comparisons of average scale scores for different groups of students

	Previous year		Current year		Previous year and current year			
Group	Average scale score	Standard error	Average scale score	Standard error	Differences in averages	Standard error of differences	Test statistic	Percent confidence[1]
Group 1	224	1.3	226	1.0	2.08	1.62	1.29	20
Group 2	187	1.7	193	1.7	6.31	2.36	2.68	1
Group 3	191	2.6	197	1.7	6.63	3.08	2.15	4
Group 4	229	4.4	232	4.6	3.24	6.35	0.51	62
Group 5	201	3.4	196	4.7	-5.51	5.81	-0.95	35

[1] The percent confidence is 2(1-F(x)) where F(x) is the cumulative distribution of the *t*-distribution with the degrees of freedom adjusted to reflect the complexities of the sample design.
NOTE: Data in table are for illustration purposes only and are not actual NAEP data.

The difference in average scale scores and its estimated standard error can be used to find an approximately 95 percent confidence interval or they can be used to identify a confidence percentage. The confidence percentage for the test statistics is identified from statistical tables. The significance level from the statistical tables can be directly compared to 100 - 95 = 5 percent.

If the comparison of average scale scores across two years were made for only one of the five groups, there would be a significant difference between the average scale scores for the two years at a significance level of less than 5 percent. However, because we are interested in the difference in average scale scores across the two years for all five of the groups, comparing each of the significance levels to 5 percent is not adequate. Groups of students defined by shared characteristics, such as racial/ethnic groups, are treated as sets or families when making comparisons. However, comparisons of average scale scores for each pair of years were treated separately, so the steps described in this example would be replicated for the comparison of other current and previous year average scale scores.

Using the FDR procedure to take into account that all comparisons are of interest to us, the percents of confidence in the example are ordered from largest to smallest: 62, 35, 20, 4, and 1. In the FDR procedure, 62 percent confidence for the group 4 comparison would be compared to 5 percent, 35 percent for the group 5 comparison would be compared to $0.05 \times (5\text{-}1)/5 = 0.04 = 4$ percent,[23] 20 percent for the group 1 comparison would be compared to $0.05 \times (5\text{-}2)/5 = 0.03 = 3$ percent, 4 percent for the group 3 comparison would be compared to $0.05 \times (5\text{-}3)/5 = 0.02 = 2$ percent, and 1 percent for the group 2 comparison (actually slightly smaller than 1 prior to rounding) would be compared to $0.05 \times (5\text{-}4)/5 = 0.01 = 1$ percent. The procedure stops with the first contrast found to be significant. The last of these comparisons is the only one for which the percent confidence is smaller than the FDR procedure value. The difference between the current year's and previous years' average scale scores for the group 2 students is significant; for all of the other groups, average scale scores for current and previous year are not significantly different from one another. In practice, a very small number of counterintuitive results occur when the FDR procedures are used to examine between-year differences in subgroup results by jurisdiction. In those cases, results were not included in this report.

Understanding NAEP Reporting Groups

NAEP results are provided for groups of students defined by shared characteristics—gender, race/ethnicity, parental education, region of the country, type of school, school's type of location (categorized by population density), and eligibility for free/reduced-price school lunch. Based on participation rate criteria, results are reported for subpopulations only when sufficient numbers of students and adequate school representation are present. In addition, based on statistical considerations about power and variance estimation, the minimum requirement on which to base any subgroup statistic is at least 62 students in a particular subgroup from at least five primary sampling units (PSUs).[24] Definitions of the subpopulations are presented below.

Gender: Results are reported separately for male students and female students.

Race/Ethnicity: In all NAEP assessments, data about student race/ethnicity is collected from two sources: school records and student self-reports. Prior to 2002, NAEP used students' self-reported race as the primary race/ethnicity reporting variable. Beginning in 2002, the race/ethnicity variable presented in NAEP reports has been based on the race reported by the school. When school-recorded information is missing, student-reported data are used to determine race/ethnicity. Information on student race/ethnicity is reported as one of six categories: White, Black, Hispanic, Asian/Pacific Islander, American Indian/Alaska Native, and Unclassified. Black includes African American, Hispanic includes Latino, and Pacific Islander includes Native Hawaiian. Race categories exclude Hispanic origin unless specified. Unclassified students are those whose school-reported race/ethnicity was "other" or "unavailable" or was missing, and whose race/ethnicity category could not be determined from self-reported information. Information based on student self-reported race/ethnicity is available on the NAEP Data Tool (http://nces.ed.gov/nationsreportcard/naepdata/).

Parental Education: Eighth-graders were asked the following two questions, the responses to which were combined to derive the parental education variable:

How far in school did your mother go?

- She did not finish high school.
- She graduated from high school.
- She had some education after high school.
- She graduated from college.
- I don't know.

How far in school did your father go?

- He did not finish high school.
- He graduated from high school.
- He had some education after high school.
- He graduated from college.
- I don't know.

The information was combined into one parental-education reporting variable in the following way: If a student indicated the extent of education for only one parent, that level was included in the data. If a student indicated the extent of education for both parents, the higher of the two levels was included in the data. If a student responded "I don't know" for both parents, or responded "I don't know" for one parent and did not respond for the other, the parental education level was classified as "I don't know." If the student did not respond for either parent, the student was recorded as having provided no response. Fourth-graders' replies to this question are not reported because their responses to previous NAEP assessments were highly variable, and a large percentage of them chose the "I don't know" option.

Region of the Country: Prior to 2003, NAEP results were reported for four NAEP-defined regions of the nation: Northeast, Southeast, Central, and West. As of 2003, to align NAEP with other federal data collections, NAEP analysis and reports have used the U.S. Census Bureau's definition of "region." The four regions defined by the U.S. Census Bureau are Northeast, South, Midwest, and West. The Central region used by NAEP before 2003 contained the same states as the Midwest region defined by the U.S. Census. The former Southeast region consisted of the states in the Census-defined South minus Delaware, the District of Columbia, Maryland, Oklahoma, Texas, and the section of Virginia in the District of Columbia metropolitan area. The former West region consisted of Oklahoma, Texas, and the states in the Census-defined West. The former Northeast region consisted of the states in the Census-defined Northeast plus Delaware, the District of Columbia, Maryland, and the section of Virginia in the District of Columbia metropolitan area. Therefore trend data by region are provided in NAEP reports for 2003 and 2005 only. Figure A-1 shows how states are subdivided into these census regions. All 50 states and the District of Columbia are listed. Other jurisdictions, including the Department of Defense Educational Activity schools, are not assigned to any region.

Figure A-1. States within regions of the country defined by the U.S. Census Bureau

Northeast	South	Midwest	West
Connecticut	Alabama	Illinois	Alaska
Maine	Arkansas	Indiana	Arizona
Massachusetts	Delaware	Iowa	California
New Hampshire	District of Columbia	Kansas	Colorado
New Jersey	Florida	Michigan	Hawaii
New York	Georgia	Minnesota	Idaho
Pennsylvania	Kentucky	Missouri	Montana
Rhode Island	Louisiana	Nebraska	Nevada
Vermont	Maryland	North Dakota	New Mexico
	Mississippi	Ohio	Oregon
	North Carolina	South Dakota	Utah
	Oklahoma	Wisconsin	Washington
	South Carolina		Wyoming
	Tennessee		
	Texas		
	Virginia		
	West Virginia		

SOURCE: U.S. Department of Commerce Economics and Statistics Administration.

Type of School: Results are reported by the type of school that the student attends—public or private. Private schools include Catholic and other private schools.[25] Because they are funded by federal authorities (not state/local governments), Bureau of Indian Affairs (BIA) schools and Department of Defense Education Activity (DoDEA) schools are not included in either the public or private categories; they are included in the overall national results. State-level reporting in NAEP includes only public schools. The national sample reporting for NAEP includes public, private, the DoDEA, and BIA schools.

Type of Location: Results from the 2005 assessment are reported for students attending schools in three mutually exclusive location types: central city, urban fringe/large town, and rural/ small town.

Central city: Following standard definitions established by the federal Office of Management and Budget, the U.S. Census Bureau (see http://www.census.gov/) defines "central city" as the largest city of a Metropolitan Statistical Area (MSA) or a Consolidated Metropolitan Statistical Area (CMSA). Typically, an MSA contains a city with a population of at least 50,000 and includes its adjacent areas. An MSA becomes a CMSA if it meets the requirements to qualify as a metropolitan statistical area, it has a population of 1,000,000 or more, its component parts are recognized as primary metropolitan statistical areas, and local opinion favors the designation. In the NCES Common Core of Data (CCD), locale codes are assigned to schools. School locale codes are assigned by the U.S. Census Bureau. For the definition of central city used in this report, two locale codes of the survey are combined. The definition of each school's type of location is determined by the size of the place where the school is located and whether or not it is in an MSA or CMSA. For the definition of central city, NAEP reporting uses data from two CCD locale codes: large city (a central city of an MSA or CMSA with the city having a population greater than or equal to 25,000) and midsize city (a central city of an MSA or CMSA having a population less than 25,000). Central city is a geographical term and is not synonymous with "inner city."

Urban fringe/large town: The urban fringe category includes any incorporated place or census designated place within a CMSA or MSA of a large or mid-sized city and defined as urban by the U.S. Census Bureau, but which does not qualify as a central city. A large town is defined as a place outside a CMSA or MSA with a population greater than or equal to 25,000.

Rural/small town: Rural includes all places and areas with populations of less than 2,500. A small town is defined as a place outside a CMSA or MSA with a population of less than 25,000, but greater than or equal to 2,500. Results for each type of location are compared only across years 2000 and after. This is due to new methods used by NCES to identify the type of location assigned to each school in the Common Core of Data (CCD). The new methods were put into place by NCES in order to improve the quality of the assignments, and they take into account more information about the exact physical location of the school. The variable was revised in NAEP beginning with the 2000 assessments.

Eligibility for Free/Reduced-Price School Lunch: As part of the Department of Agriculture's National School Lunch Program, schools can receive cash subsidies and donated commodities in turn for offering free or reduced-price lunches to eligible children. Based on available school records, students were classified as either currently eligible for free/reduced-price school lunch or not eligible. Eligibility for the program is determined by students' family income in relation to the federally established poverty level. Free lunch qualification is set at 130 percent of the poverty level or below, and reduced-price lunch qualification is set at between 130 and 185 percent of the poverty level. Additional information on eligibility may be found at the Department of Agriculture website (http://www.fns.usda.gov/cnd/lunch/). The classification applies only to the school year when the assessment was administered (i.e., the 2004–05 school year) and is not based on eligibility in previous years. If school records were not available, the student was classified as "Information not available." If the school did not participate in the program, all students in that school were classified as "Information not available."

Caution in Interpretations

As previously stated, the NAEP mathematics scale makes it possible to examine relationships between students' performance and various background factors measured by NAEP. However, a relationship that exists between achievement and another variable does not reveal its underlying cause, which may be influenced by a number of other variables. Similarly, the assessments do not reflect the influence of unmeasured variables. The results are most useful when they are considered in combination with other knowledge about the student population and the educational system, such as trends in instruction, changes in the school-age population, and societal demands and expectations. A caution is also warranted for some small population group estimates. At times in this report, smaller population groups show very large increases or decreases across years in average scores; however, it is necessary to interpret such score gains with extreme caution. The effects of exclusion-rate changes for small subgroups may be more marked for small groups than they are for the whole population. Another reason for caution is that the standard errors are often quite large around the score estimates for small groups, which in turn means the standard error around the gain is also large.

End Notes

[1] National Council of Teachers of Mathematics. (1989). *Curriculum and Evaluation Standards for School Mathematics.* Reston, VA: Author.

[2] National Assessment of Educational Progress. (1988). *Mathematics Objectives: 1990 Assessment*. Princeton, NJ: Author.

[3] National Assessment Governing Board. (1995) *Mathematics Framework for the 1996 National Assessment of Educational Progress*. Washington, DC: Author.

[4] Section 504 of the Rehabilitation Act of 1973 is a civil rights law designed to prohibit discrimination on the basis of disability in programs and activities, including education, that receive federal financial assistance.

[5] The initial base sampling weights were used in weighting the percentages of participating schools and students. An attempt was made to preselect one substitute school for each sampled public school, one for each sampled Catholic school, and one for each sampled private school (other than Catholic). To minimize bias, a substitute school resembled the original selection as much as possible in affiliation, type of location, estimated number of grade-eligible students, and demographic composition.

[6] Office of Special Education Programs. (1997). *To Assure the Free Appropriate Public Education of all Children with Disabilities. Nineteenth Annual Report to Congress on the Implementation of the Individuals With Disabilities Education Act.* Archived at the U.S. Department of Education web site: http://www.ed.gov/about/offices/list/osers/index.html.

[7] The two samples are described as "overlapping" because, in 1996 and 2000, the same group of non-SD/non-ELL students was included in both samples.

[8] Weighting procedures are described more fully in the "Weighting and Variance Estimation" section in this document. Additional information about the use of weighting procedures will be included in the technical documentation section of the NAEP website (http://nces.ed.gov/nationsreportcard).

[9] Lord, F.M. (1980). *Applications of Item Response Theory to Practical Testing Problems,* p. 229. Hillsdale, NJ: Lawrence Erlbaum Associates.

[10] Muraki, E. (1992). A Generalized Partial Credit Model: Application of an EM Algorithm. *Applied Psychological Measurement*, *16*(2): 159–176.

[11] More detailed information regarding the IRT analyses used in NAEP will be included in the technical documentation section of the NAEP web site (http://nces.ed.gov/nationsreportcard).

[12] Donoghue, J.R. (1994). An Empirical Examination of the IRT Information of Polytomously Scored Mathematics Items Under the Generalized Partial Credit Model. *Journal of Educational Measurement*, *31*(4), 295–311.

[13] Mislevy, R.J., and Sheehan, K.M. (1987). Marginal Estimation Procedures. In A.E. Beaton (Ed.) *Implementing the New Design: The NAEP 1983–1984 Technical Report* (Technical Rep. No. 15-TR-20), pp. 293–260. Princeton, NJ: Educational Testing Service.

[14] For theoretical and empirical justification of the procedures employed, see Mislevy, R. J. (1988). Randomization-Based Inferences About Latent Variables From Complex Samples. *Psychometrika, 56*(2), 177–196.

[15] Huynh, H. (1995). Some Technical Aspects of Standard Setting. In *Proceedings of the Joint Conference on Standard-Setting for Large-Scale Assessments of the National Assessment Governing Board (NAGB) and the National Center for Education Statistics (NCES), Volume II* (pp.75–93). Washington, DC: U.S. Government Printing Office.

[16] Bock, R.D. (1972). Estimating Item Parameters and Latent Ability When Responses are Scored in Two or More Latent Categories. *Psychometrika, 37,* 29–51.

[17] Donoghue, J.R. (1997, March). *Item Mapping to a Weighted Composite Scale*. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.

[18] For further details, see Johnson, E.G., and Rust, K.F. (1992). Population Inferences and Variance Estimation for NAEP Data. *Journal of Educational Statistics*, *17*(2), 175–190.

[19] This is a special form of the common formula for standard error of dependent samples. The standard formula can be found, for example, in Kish, L. (1995). *Survey Sampling.* New York: John Wiley and Sons, Inc.

[20] Miller, R.G. (1981). *Simultaneous Statistical Inference* (2nd ed.). New York: Springer-Verlag.

[21] Benjamini, Y., and Hochberg, Y. (1995). Controlling the False Discovery Rate: A Practical and Powerful Approach to Multiple Testing. *Journal of the Royal Statistical Society,* Series B, no. 1, 289–300.

[22] Williams, V.S.L., Jones, L.V., and Tukey, J.W. (1999). Controlling Error in Multiple Comparisons with Examples From State-to-State Differences in Educational Achievement. *Journal of Educational and Behavioral Statistics*, *24*(1), 42–69.

[23] The level of confidence times the number of comparisons minus one divided by the number of comparisons is 0.05(5-1)/5=0.04=4 percent.

[24] For the NAEP national assessments prior to 2002, a PSU is a selected geographic region (a county, group of counties, or metropolitan statistical area). Since 2002, the first-stage sampling units are schools (public and nonpublic) in the selection of the combined sample. Further details about the procedure for determining minimum sample size will appear in the technical documentation section of the NAEP website (http://nces.ed.gov/nationsreportcard).

[25] A more detailed breakdown of private school results is available on the NAEP website (http://nces.ed.gov/nationsreportcard/naepdata).

Where to Find More Information

The NAEP Mathematics Assessment
The latest news about the NAEP 2005 mathematics assessment and the national results can be found on the NAEP website at http://nces.ed.gov/nationsreportcard/mathematics/results/. The individual snapshot reports for each participating state and other jurisdictions are also available in the state results section of the website at http://nces.ed.gov/nationsreportcard/states/.

The Nation's Report Card: Mathematics 2005 may be ordered or downloaded at the NAEP website.

The *Mathematics Framework for the 2005 National Assessment of Educational Progress*, on which this assessment is based, is available at the National Assessment Governing Board website (http://www.nagb.org/pubs/m_framework_05/761607-Math%20Framework.pdf).

Additional Results from the Mathematics Assessment
For more findings from the 2005 mathematics assessments, refer to the NAEP 2005 results at http://nces.ed.gov/nationsreportcard/naepdata/. The interactive database at this site includes student, teacher, and school variables for all participating states and other jurisdictions, the nation, and the four regions. Data tables are also available for each jurisdiction, with all background questions cross-tabulated with the major demographic variables. Users can design and create tables and can perform tests of statistical significance at this website.

Technical Documentation
For explanations of NAEP survey procedures, see: Allen, N.L., Donoghue, J.R., and Schoeps, T.L. (2001). *The NAEP 1998 Technical Report*. (NCES 2001–509). Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement, National Center for Education Statistics. Technical information may also be found on the NAEP website at (http://nces.ed.gov/nationsreportcard/mathematics/results2003/interpret-results.asp).

Publications on the inclusion of students with disabilities and limited-English-proficient students
Olson, J.F., and Goldstein, A.A. (1997). *The Inclusion of Students With Disabilities and Limited-English-Proficient Students in Large-Scale Assessments: A Summary of Recent Progress* (NCES 97–482). Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement, National Center for Education Statistics.

Mazzeo, J., Carlson, J.E., Voelkl, K.E., and Lutkus, A.D. (2000). *Increasing the Participation of Special-Needs Students in NAEP: A Report on 1996 Research Activities* (NCES 2000–473). Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement, National Center for Education Statistics.

Lutkus, A.D., and Mazzeo, J. (2003). *Including Special-Needs Students in the NAEP 1998 Reading Assessment, Part I: Comparison of Overall Results With and Without Accommodations* (NCES 2003–467). Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics.

Lutkus, A.D. (2004). *Including Special-Needs Students in the NAEP 1998 Reading Assessment, Part II: Results for Students With Disabilities and Limited-English-Proficient Students* (ETS-NAEP 04-R01). Princeton, NJ: Educational Testing Service.

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Recent NAEP publications related to mathematics are listed on the mathematics page of the NAEP website and are available electronically. Publications can also be ordered from:

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The NAEP State Report Generator was developed for the NAEP 2005 reports by Phillip Leung, Anthony Lutkus, Paul Gazzillo, Mike Narcowich, Nancy Mead, Arlene Weiner, Linda Myers, Mary Daane, and Bobby Rampey.

What is the Nation's Report Card?

The Nation's Report Card, the National Assessment of Educational Progress (NAEP), is a nationally representative and continuing assessment of what America's students know and can do in various subject areas. Since 1969, assessments have been conducted periodically in reading, mathematics, science, writing, history, geography, and other fields. By making objective information on student performance available to policymakers at the national, state, and local levels, NAEP is an integral part of our nation's evaluation of the condition and progress of education. Only information related to academic achievement is collected under this program. NAEP guarantees the privacy of individual students and their families.

NAEP is a congressionally mandated project of the National Center for Education Statistics within the Institute of Education Sciences of the U.S. Department of Education. The Commissioner of Education Statistics is responsible, by law, for carrying out the NAEP project through competitive awards to qualified organizations.

In 1988, Congress established the National Assessment Governing Board (NAGB) to oversee and set policy for NAEP. The Board is responsible for selecting the subject areas to be assessed; setting appropriate student achievement levels; developing assessment objectives and test specifications; developing a process for the review of the assessment; designing the assessment methodology; developing guidelines for reporting and disseminating NAEP results; developing standards and procedures for interstate, regional, and national comparisons; determining the appropriateness of all assessment items and ensuring the assessment items are free from bias and are secular, neutral, and non-ideological; taking actions to improve the form, content, use, and reporting of results of the National Assessment; and planning and executing the initial public release of NAEP reports.

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NAEP 2005 Mathematics Report for California

Last updated October 2005 (PTL) version (0.9000.0000)